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# The Housing Problem

## A Series of Interviews with Bankers, Builders and Real Estate Operators by a Representative of the Editorial Department of THE AMERICAN ARCHITECT

THERE have been a great many inquiries into the housing problem, both by individuals and committees of various sorts, but most of them have resulted in nothing tangible enough to the so-called middle class citizen to aid him effectively in getting money to build the home he desires, provided he can borrow the necessary amount of money for that purpose. The man with an unoccupied and unencumbered piece of property finds himself as badly off, so far as the possibility of building him a home is concerned, as Diogenes was in his search for an honest man. The business man can nowhere find money with which to build a home.

Such a condition must have its cause, and, since it is concerned primarily with money at its source, it seems logical to think of the banks as either a contributing factor to the situation or as having in their possession the facts of the case. It was with this object in view that two of the leading bankers of this country were approached on the subject, with a view to determining whether it might be simple money stringency, high interest rates, the situation of the call money market, or any other of the various factors which would seem to enter into the problem.

The banks, stated George E. Roberts, vice-president of the National City Bank of New York, to a representative of this journal, are in no wise to be blamed for the situation, since it has been caused by circumstances entirely beyond the control of any bank or group of banks.

"The war, high prices for commodities and for labor, and a general unsettled condition have made a real estate loan a relatively poor risk," Mr. Roberts explained. "The Liberty Loan drives made serious inroads into the capital of banks all over the country, and quite especially into that of the large banks. By serious, I mean that a goodly portion of the bank's capital was put into the bonds, thus taking just so much money from the hands of prospective borrowers. For example, a bank with ten million in capital bought, let us say, one million in bonds. That is a high estimate, but it will serve the purpose. That million put out for bonds took exactly one million from the available money which the bank would have had for borrowers. The bank is therefore forced to operate with nine millions. First of all, it must take care of its regular customers. They have first call on any bank. Having taken care of them, it may then properly look out for the prospective buyer who is not a customer. But it lacks exactly one million dollars with which to operate, so far as outside loans are concerned. If it does make loans, it is only logical to suppose that it will make them where it can profit most by the loan."

"The call money market, for example?"

"Not necessarily. It would put out a certain amount in the call money market, but that has no relation to the real estate market. Mind you, I am giving you my opinion on this matter; for we are a national bank and are therefore prohibited from making loans on real estate. But let me emphasize that the call money market has no bearing on the loans made in real estate. They are distinctly two different affairs in the administration of the bank, and fluctuations in the one have no bearing on the other."

The banks today are going in rather heavily for both government and certain railroad bonds, according to Mr. Roberts. There has never been a time when such bonds could be bought so cheaply, and in the railroad bonds, there are a great many cheap buys in long terms—some as high as 100-year. At the present, and for some time past, the banks are naturally interested in the agricultural situation, and the crops are calling for a great deal of money. The interest rates on agricultural loans are higher than those on the small real estate loan, and it is only natural that the banks, disturbed by the war and its consequent reactions, should seek to repair their conditions by the most advantageous placing of loans.

These facts Mr. Roberts pointed to as refutation of

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the statement that banks are concentrating on call loans at rates 15 to 25 and even to 30 per cent., and his opinions were shared by Francis H. Sisson, vice-president of the Guaranty Trust Company of New York.

Mr. Sisson pointed out, in an interview with the writer, that the situation may be best summed up in the fact that in 1913 the estimated building operations for the entire United States was 100 per cent. normal, and only 75 per cent. normal in 1919, with a further deficit in 1920.

"The accumulated deficit for the period from 1913 to 1920," Mr. Sisson said, "is 134 per cent. It is undoubtedly due in large part to hesitation to undertake new building at current costs and to the difficulties of financing such undertakings. There is no general expectation that by postponing new building for a few months marked savings may be realized through future declines in prices. Even should the long-desired definite recession in prices develop there is much ground for the belief that for some time yet building costs will show at best but slight decline apart from temporary fluctuations. It is believed by many that there will be still further advances in building costs generally. As for the influence of credit stringency upon building operations, other lines of business enterprises are also affected, most of which show no such marked decline in activity as does the building industry.

"In some localities there is a general dearth of available building materials. In some localities one or another material may be found in sufficient quantities for the immediate needs of the building in hand, but other equally essential materials are lacking and, in consequence, operations are as effectively suspended as if all the supplies were lacking. Brick, for example, is available where there is no cement. On the other hand, certain lumber mills are idle because they are not able to move their product."

"Then it would seem that the transportation tangle is the primary source of the decline."

"It is. It seems to me that the urgency of the need for new building would warrant a system of freight priorities which would serve to increase activity in this essential industry. The problem of priorities is, of course, a very complex one; with so many essential businesses in need of every assistance, not one of them can be favored directly by freight preference or indirectly by embargoes without, at the same time, handicapping some other enterprises. But if any claim for special treatment is warranted under the present conditions, apparently building materials are well toward the head of the list of commodities for which such claims may be rightly made."

"We made a recent survey of the situation," Mr. Sisson continued, "and based part of it upon tables showing the number of permits issued in the first five months of the current year. Normally, the permits for the month of May are about double those for January. But in the first five months of 1920, with the exception of the Pacific and New England districts, there was a smaller volume of permits in May of this year than in January, and in the two districts where there was not a decline, the increase was relatively small. These statistics covered 105 cities, and the figures were corrected to eliminate normal seasonal variations. And investigation of the cause for such a decline invariably led, in the end, to one answer: Transportation. Everywhere that one word seemed to explain the whole situation."

## THE BUILDER'S SIDE OF THE PROBLEM

THE builders differ from the bankers in their reasons for the slow improvement of the housing situation. With them there is little reference to loans or the call money market or to the financial side of the problem. They speak almost exclusively in terms of labor and of the high cost of commodities and material, and have little to say regarding the capital with which even the high prices of these things are being met today. Generally, as Frank P. McCord, of Post & McCord, of New York, explained to the writer, builders look upon the housing problem as centering around three things: Labor, materials and transportation.

"I won't speak of the financial phase of the matte," Mr. McCord said, "because I am a builder and not a banker. I am engaged principally in structural steel work, and therefore am not personally in touch with the housing situation as applied to the building of homes. But I believe that the same psychology holds true for both the small and the large builder. Both are unwilling to take the chance, at the present moment, of building. The decent element of labor is dependable and worth-while, but the radical element makes labor what the insurance men would term an extremely high risk. I do not mean by that that one has anything to fear from labor, for I would be the last man on earth to make such a statement. I have faith in labor, and know that it is sound at the bottom; but I know also that at this time there is a peculiarly restless spirit running through it as a result of the war and its aftermath, and that this spirit is, in my opinion, holding back contractors who deal in the small housing scheme or unit. Materials enter much more directly into the housing tangle than any other factor, so far as the man who is paying for the house is concerned. It is my opinion that you will find a great many men living either in apartments or hotels or boarding houses who have, at present, sufficient money with which to build themselves decent houses, even at present prices. But they are holding



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off, and will continue to hold off, precisely as department stores held off buying until wholesale prices came down. The average man says to himself: 'I have seven thousand dollars. I can build a comfortable little home for that at present, but I can build a much better home for that same money when prices come down. I will live in an apartment until they *do* come down. I don't believe it will be long.' Having said that to himself, and having fully convinced himself that prices *are* coming down very shortly, he goes into an apartment and lives there. And his house is not built.

"Transportation," Mr. McCord pointed out, "is an extremely serious problem from the standpoint of the contractor, small or large. The contractor cannot depend upon delivery of materials, and since his contract price is calculated upon efficient delivery of materials, he cannot afford to take the transportation risk, as we term it, without safeguarding himself against it in the contract price. Which means more money for the house to be built, a factor which the man who is to pay for that house necessarily objects to.

"Those are the reasons for the housing situation as it stands today, in a very brief and incomplete way. There are ramifications of every reason given, and an exhaustive inquiry into all of them would turn up innumerable others. But fundamentally the whole situation is concerned only, so far as the builders are concerned, with labor, materials and transportation."

## LEGISLATION, SAYS A REAL ESTATE OPERATOR

CURIOUSLY enough, one of the most prominent real estate operators in the country was most severe in his arraignment of the real estate situation as it exists today. When asked what he considered the fundamental difficulty with the housing problem, Lawrence B. Elliman, president of Pease & Elliman, stated emphatically and immediately that the recent action of the legislature in its passage of bills which make it possible to regulate real estate rentals by the judiciary and other means, was the real and fundamental cause of the present housing and real estate situation.

"Real estate operators," Mr. Elliman explained, "have no assurance, nor do they know, that the next session of the New York state legislature will not pass further laws relating to this subject. The builder of small home units especially is fearful of this possibility, because he can say quite logically, 'What is to prevent the legislature from passing a law at its next session fixing the price at which a given style or size of house will sell?' Is that not a logical possibility? Until the present rent-fixing laws, so-called, are taken off the statute books, there can be little hope of an optimistic outlook upon the housing situation by real estate men or by builders.

"That is a local condition, of course; but if such laws are declared constitutional in this state, it will most certainly establish a precedent which any other state may take as a basis for similar laws. Such a condition, if it came to pass, would work havoc with the real estate market and therefore with housing. Real estate men cannot be expected to carry on their business under such regulations, unless they are to be considered as public utilities, such as railroads.

"An arbitrary decision as to rents—and, of course, this decision is made by men who are not expert in the proper basis for such rents—reacts always against the real estate operator. Consider the possibility of similar arbitrary decisions as to the prices of houses when completed, regardless of what they cost to build, and you have a fair idea of how much confidence builders have in the future of housing until such laws are definitely and emphatically declared unconstitutional.

"But at present," it was suggested by the writer, "the problem is in getting money to build. What is the difficulty there?"

"Simply a question of money stringency," Mr. Elliman replied. "Twenty years ago," he went on with a smile, "a banker told me that the real estate business would never amount to much unless the real estate men got together and improved their financial system. He pointed to the fact that railroads have made their success possible on long-term bonds or notes, and compared the relatively short-term mortgage to such security. I believe he was right. We need, at the present moment, such a financial revision; we need long-term mortgages as a general thing. Not five-year, but twenty or thirty year mortgages.

"Now, what has that to do with the present situation? Simply this: Investors are putting their money into tax exempt government bonds and railroad bonds, some of which are yielding them as high as 7 per cent. They are long term bonds, compared to the short term 6 per cent. real estate mortgage, which yields only about 2 per cent. when the various taxes have been paid on it, they are a logical investment. And a correct one, in my opinion. If you have $100,000 to invest, you are not going to put it into a 6 per cent. real estate loan when you can get as high as 7 per cent. on very substantial railroad bonds. Are you?"

"Possibly not," said the writer. "It would be better yet to try the call money market."

"A thousand times better," Mr. Elliman emphasized. "I would do it myself if I had that sum to invest separately from real estate. I blame no one for putting their money into the call money market—

where undoubtedly a great deal of it is going—nor for putting it into any enterprise where it will yield him a higher rate of interest."

"And let me say," Mr. Elliman smiled, as the writer was leaving his office, "that I think any man a fool who would invest money in real estate when we have legislative supervision."

### JOSEPH P. DAY CRITICIZES THE BANKS

THE banks have taken a most illogical position on the housing problem, according to Joseph P. Day, one of the largest real estate operators in the country. Mr. Day stresses the fact that banks, representing a conservative and constructive force, have failed in promoting those forces by curtailing loans upon real estate, and, incidentally, pointed out that the Metropolitan Life Insurance Company is practically the only large organization of its kind which is at present seeking to ease the housing situation by making loans to the small home builder.

"It is my contention, based upon years of experience," Mr. Day stated, "that the man who owns property is unquestionably the better type of citizen. Sell a man a piece of land or a house and you have removed a great factor in radicalism or Bolshevism. It may work little effect in the present generation, but it is a fact that it always makes its influence felt upon the following generation, and those to follow. Property is the best check known upon radicalism, and the elimination of that dangerous factor from any nation stabilizes that nation and promotes a conservative careful mode of living.

"Now, the banks are essentially conservative. Nothing pleases them better than evidences of good citizenship, for good citizenship increases any bank's

(*Continued on page* 641)

# British Architects and American Architecture

WITH the coming on of autumn our thoughts turn to the meetings of the various learned societies connected with our craft, and American architecture is one subject that attracts attention at discussions of British architects, but it deserves to have even more notice taken of it; for a study of the reports of certain meetings held recently shows that the American architect has in some directions decidedly taken the lead of his European confrère. Conditions of life, says the British building press, have imposed upon him new problems, aesthetic and constructional, and in facing these, as he was bound to do, he has achieved some remarkable results on the constructional side, while as to the artistic effect of his productions, he seems to be evolving more than one new style which will be, when developed, distinctly American. Two sorts of construction in which he has gone right ahead of all European rivalry are, first, that of very tall buildings for office and residential purposes, and, next, that of huge departmental stores. As to the very tall buildings. American ingenuity has been able to provide house room or office accommodation for an enormous number of people on a relatively small space, but we do not gather that it has been equal to the problem of providing adequate lighting and ventilation for all the rooms in such a building; and if we remember that we do not always get nearly enough light and air in buildings here on a scale very much below that of the New York skyscraper, we shall not wonder that the American architect, although favored with a brighter sky than ours, has failed in the supremely difficult task he has undertaken.

In the department stores, also, it is the case that, generally, some part of the huge floor space can only be lighted by artificial means; but there are notable exceptions to this rule, and these are to be found among the finest and largest stores. Those who have studied the planning and lay-out of American stores speak very highly of their convenience and suitability to the purpose for which they are designed, and describe the decoration and appearance of the buildings generally as magnificent. Naturally, such departmental stores do not exist in a state of splendid isolation in cities where most of the other architecture is mediocre; generally the architecture of shops, office buildings, and so on, is finer in America than here. Last year an English architect (Mr. Austen Hall), exhibiting a lantern slide of a shop front in New York, remarked that he would be happy if there were one such shop front in London; but that Fifth Avenue consisted entirely of such buildings. It was the finest shopping street in the world.

It is not, however, only in the largeness of the scale and the magnificence of the decoration of its city architecture that America has struck a new

note. Another English architect (Mr. Robert Atkinson) last year, while praising American architecture very highly indeed, complained that its decoration lacked originality. It was invariably neo-something or other; plans and constructions eminently modern in every sense were clothed in copy-book designs. But in Chicago and in the cities further west he had found a school of architecture to which this criticism did not apply. Here America was producing new designs based on modern requirements. The buildings might be ugly, but they expressed something as the architect understood it in a new spirit, and they were becoming better adapted to their requirements; they were improving every day. In Southern California also Mr. Atkinson said he had come across another and not less interesting development. Here there was a native style of architecture to be found in the mission buildings erected in the early days of Spanish conquest and settlement. The material used was baked mud, and the brown buildings set in the midst of the brown landscape had a picturesque effect and harmonized well with their surroundings. They provided an admirable model for construction in concrete, and American architects had realized that they here got away from the classic, and were developing something which might become in time another American style.

It is only fair to the English architect to mention certain advantages which are enjoyed by his American colleague and rival. Building Acts there are less restrictive and more up to date than here, and there is an appreciation of fine architecture on the part of all classes of the population. In particular the business man does not consider his splendid building as a useless expense—at best an advertisement. He looks upon it as an investment; he takes a pride in it; he wishes it fine in every respect. This being said, the fact stands that in certain directions American architecture is the best in the world, and no young architect should consider his education complete until he has given serious attention to it.

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# Report of the Jury

## Architectural Competition for Milwaukee County General Hospital

THE jury appointed to act for the selection of plans for the Milwaukee County General Hospital in the architectural competition, under the program prepared for that purpose by Alfred C. Clas, A. I. A., begs to make the following report:

Your committee organized itself by the election of Dr. Horace M. Brown as Chairman and Mr. Irving K. Pond as Secretary of the Jury. A due consideration of the program provided for the regulation of the action of the jury and a hasty examination of the plans led the jury to adopt the following resolution in regard to its action.

On the motion of Mr. Jensen, it was agreed that the points raised in the communication from Mr. Alfred C. Clas as to the Plans Numbers 7 and 12, be waived until further report is made.

Upon motion of Mr. Jensen it was agreed that Plans Numbers 4, 10 and 13 be considered as to the points offered by Mr. Clas before final report is made.

In regard to the points made by Mr. Clas as to Plans Numbers 5, 8 and 9, upon motion of Mr. W. L. Coffey it was agreed that Plans Numbers 5, 8 and 9 be admitted to the contest. Your board then turned its attention to the individual examination of the various plans and at 6.15 p. m. adjourned to meet at 7.30 p. m.

At 9.00 a. m., June 30, the jury met at Engleman Hall and the entire morning was spent in examination and discussion of plans with temporary formal meetings of the jury for the discussion of an illumination of various points in the plans, as explained by the technical and medical men of the jury. The jury adjourned at 12.15 p. m. and reconvened at 2.00 p. m.

A discussion having arisen on legal points, Mr. Peabody moved that in consideration of the plans, the jury be limited to the provisions of the program and that all extraneous matters not found in the program be eliminated from the discussion of the jury.

Upon motion of Mr. Jensen it was agreed that when the jury makes its report it shall call the attention of the Board of Supervisors and the selected architect to the need that the selected architect have his attention called to the existing State, County and Municipal laws regulating hospital construction. The jury then took up a final discussion of the plans and after serious and careful consideration of all the points at issue and with full and careful discussion of all technical, medical and administrative functions, proper to be brought before the jury, by unanimous consent proceeded to ballot for the final awards.

The result of the ballot—tentative and formal ballots having been taken—resulted in the agreement of your jury to the following statement of awards:

First Prize: Van Ryn & DeGelleke, architects, Milwaukee, and Armstrong & DeGelleke, New York, associate architects.

Second Prize: Richard E. Schmidt, Garden & Martin, architects, Chicago.

Third Prize: Eric Gugler, architect, New York City.

Fourth Prize: Clare C. Hosmer, architect, Chicago, Wm. H. Furst—Rudolph G. Wolff, associated.

Fifth Prize: Robert A. Messmer & Bro., architects, Milwaukee.

Fifteen (15) sets of plans were placed in the hands of the jury. A careful examination of these plans from the standpoint of utility; convenience of function; applicability to the purpose intended; suitability for a proper placing upon the site; artistic values in relation to design and to the surrounding neighborhood; methods of approach for all classes of people having interest in connection with the hospital; whether the sick or well; the various methods of bringing and delivering supplies and removal of wastes; method of approach from street car lines and by other vehicles; problems with relation to lighting, ventilation, sun supply, all questions relating to the medical, surgical and scientific purposes for which the buildings were to be used, hygienic considerations in regard to interns, nurses and administrative corps of the hospital, the needs of out-patients and their proper attention and care, and so far as was in the power of your jury, other problems relating to hospital construction and service, were duly and with great care considered, discussed and made understood to every member of the jury, and it was upon the basis of the knowledge thus applied and after a most careful consideration that the awards above specified were made.

H. M. Brown, chairman; Lewis J. Daniels, M. D.; Adelaide L. Northam, R. N.; Wm. E. McCarty; James P. Sheehan; Wm. L. Coffey; Arthur Peabody; Elmer C. Jensen; Irving K. Pond, secretary.

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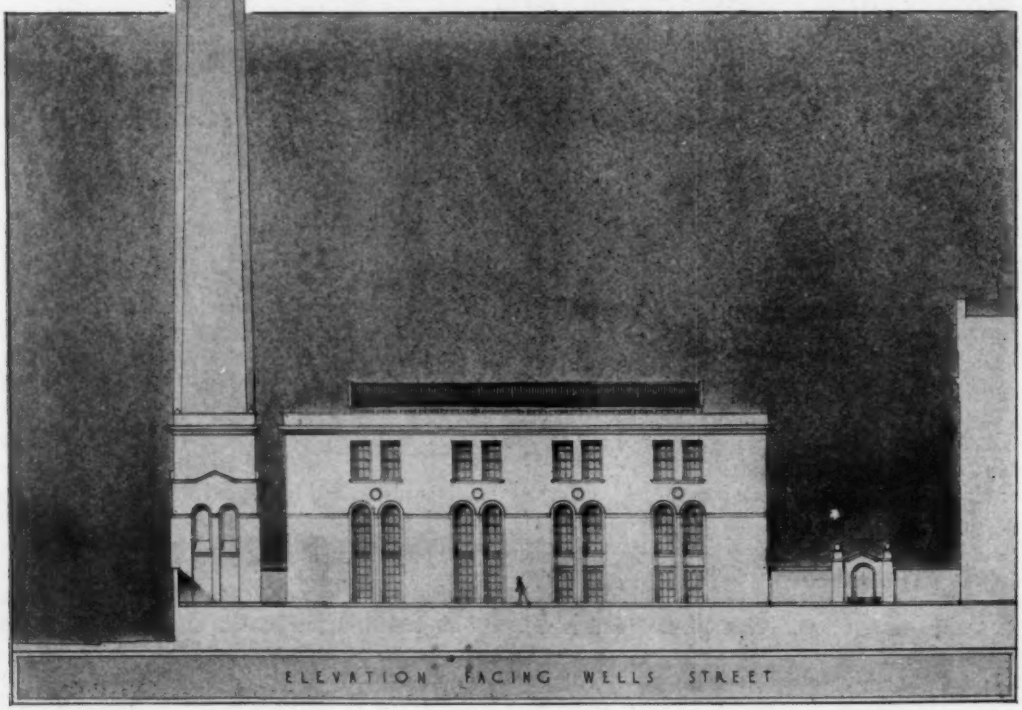
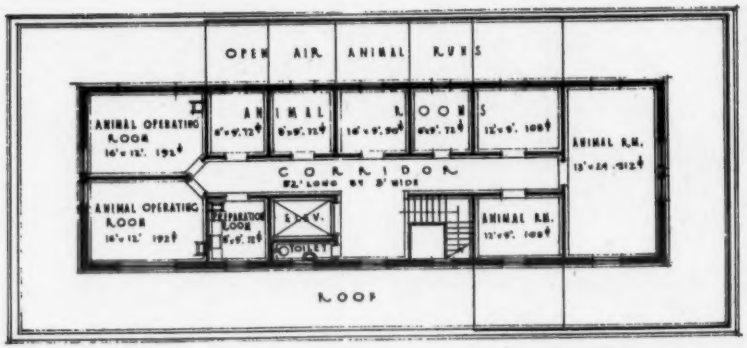
## Council of State Registration

(St. Louis, November 18-19.)

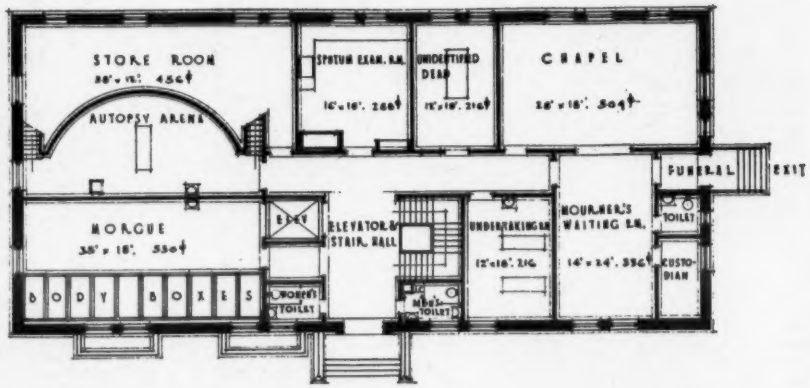
The meeting of the Council of State Registration, to be held in St. Louis November 18 and 19, is one of more than usual importance. A full report, as far as obtainable, will be presented in an early issue.



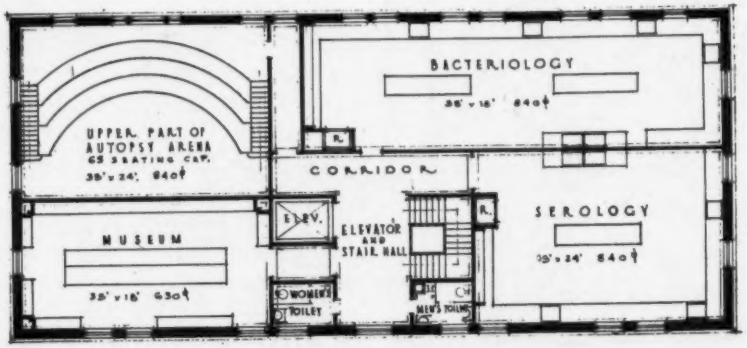

POWER HOUSE




THIRD FLOOR PLAN




BASEMENT PLAN

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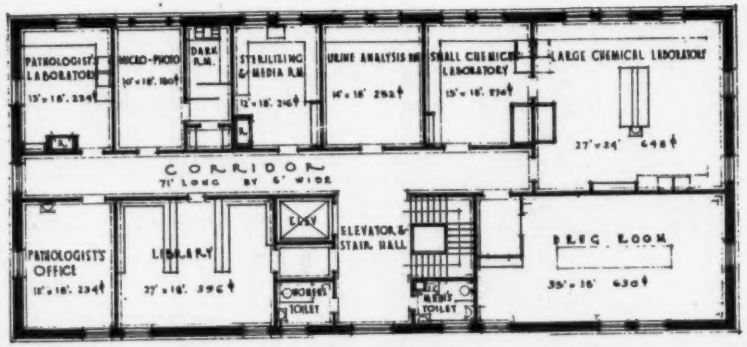
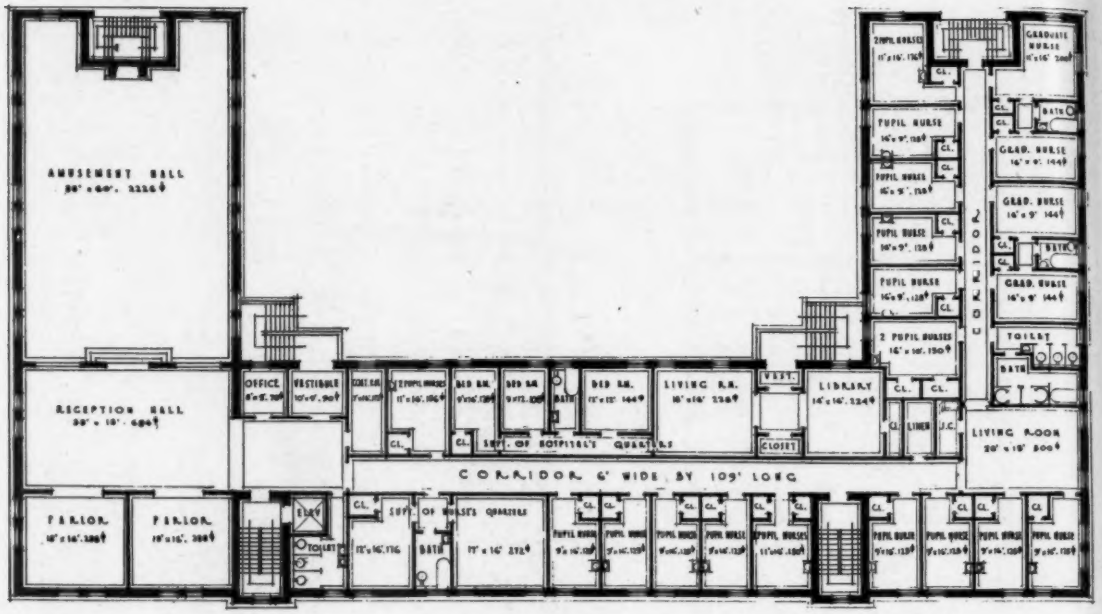



SECOND FLOOR PLAN

LABORATORY BUILDING

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

RICHARD E. SCHMIDT, GARDEN & MARTIN, *ARCHITECTS*

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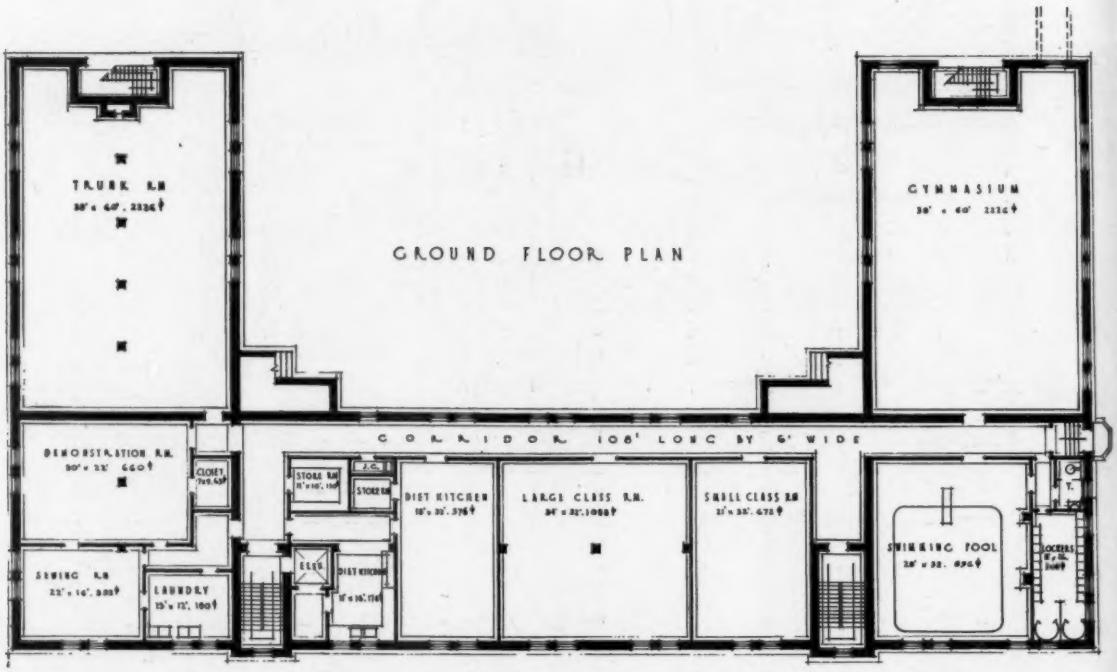
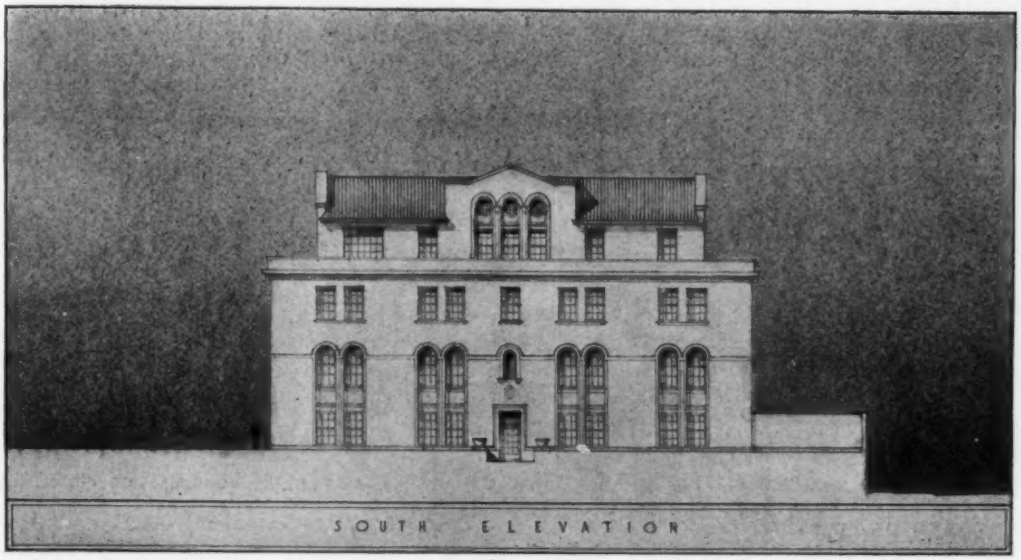



NURSES' HOME

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

RICHARD E. SCHMIDT, GARDEN & MARTIN, *ARCHITECTS*




SOUTH ELEVATION, NURSES' HOME

# Extracts from the Program Architectural Competition for Milwaukee County General Hospital Design

THE main provisions of the program of the architectural competition for the Milwaukee County General Hospital, as prepared by Alfred C. Clas, A. I. A., professional advisor to the County Board of Supervisors are given in the following paragraphs.

Main building is to be planned to take care of 515 beds, with a view to future extension to take care of an additional 500 beds. The following departments in this building must be planned at once so that they are of sufficient size to take care of a 1,000 bed hospital: Administration department, operating department, culinary and dining room department, and check room.

Nurses' home is to be planned to accommodate 100 pupil nurses and 36 graduate nurses, with a view to future extension to take care of double this number of pupil and graduate nurses. The large sitting room or amusement hall on first floor, toilet accommodations, gymnasium, swimming pool, private laundry and trunk room are to be planned at once to accommodate the additional nurses.

The power house and laundry are to be planned at once to take care of a 1,000 bed hospital.

The proposed building is to be erected on the site bounded by Grand Ave. and Wells St. and 24th and 25th Sts.

Cost: For the purpose of this competition the main hospital building shall not exceed 3,100,000 cubic feet. Laboratory building not to exceed 225,000 cubic feet. Nurses' home 350,000 cubic feet. Power house, laundry, garage and work shop not to exceed 300,000 cubic feet.

Cubage shall be computed so as to show exactly as possible the actual volume of the buildings calculated from the finished level or levels of the lowest floor to the highest points of the roofs and contained within the outside surfaces of the walls.

The number of beds called for in the various departments is as follows: Medical, 138 beds divided between three male wards, one female ward and separate rooms of one, three and four beds; surgical, 110 beds divided between two male wards, one female ward and twenty single rooms; maternity, 48

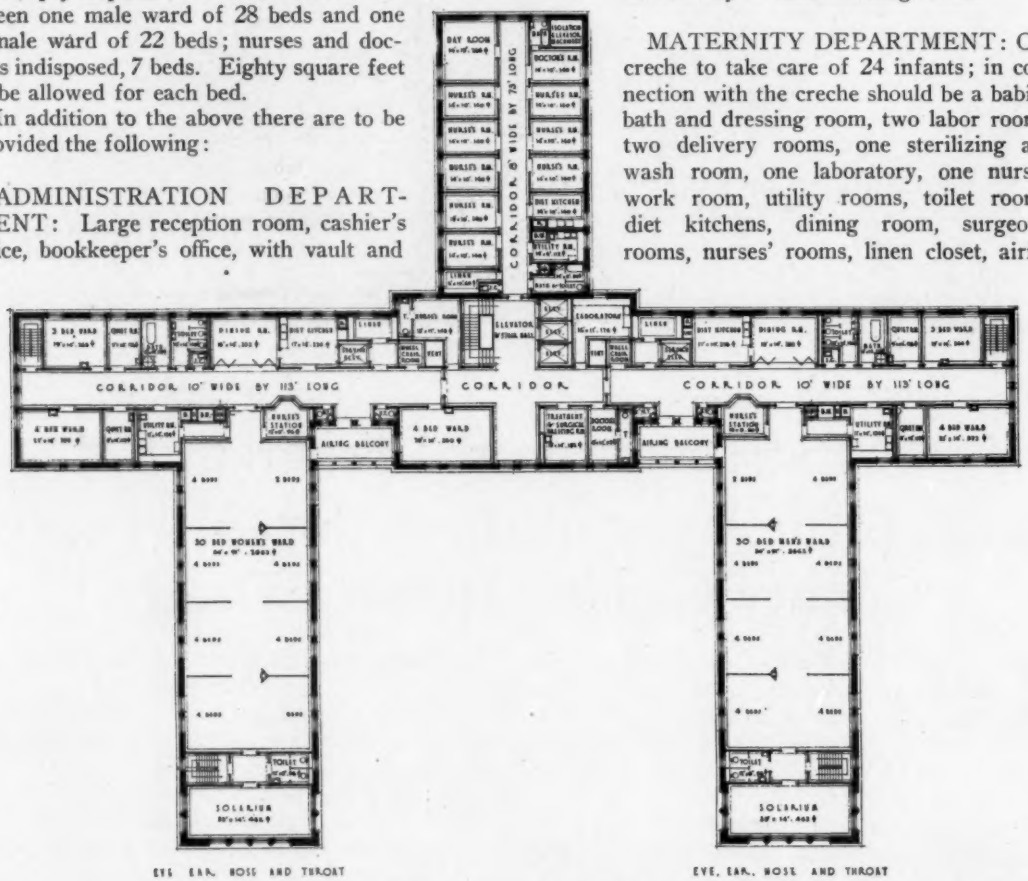
beds divided equally between twelve wards; pediatrics and orthopedics, 42 beds divided between one infants' ward of thirty beds and smaller rooms; eye, ear, nose and throat, 76 beds, divided between one male ward and one female ward of thirty beds each and smaller rooms; genito-urinary, 44 beds divided between one male ward and one female ward of 16 beds each and smaller rooms of one, two and three beds; psychopathic, 50 beds divided between one male ward of 28 beds and one female ward of 22 beds; nurses and doctors indisposed, 7 beds. Eighty square feet to be allowed for each bed.

In addition to the above there are to be provided the following:

ADMINISTRATION DEPARTMENT: Large reception room, cashier's office, bookkeeper's office, with vault and stationery storage, superintendent's general office, superintendent's private office and toilet, clerk's office, stenographer's office, record room and vault, superintendent of nurses' office, toilets for visitors and employees and toilets and lockers for doctors.

OPERATING DEPARTMENT: Two large operating rooms, four small operating rooms, two eye operating rooms, one nose and throat operating room, two orthopedic rooms, one for operating and one for plaster, one sterilizing room, one sterilizing supply room, one nurses' work room with toilet and dressing room adjoining, one surgeons' room with lockers, showers and toilet (instrument room or instrument cases should be provided for), one laboratory, X-Ray department with two X-Ray rooms, one photo supply room, one dark room, one coil room, one waiting room with dressing rooms. There are to be no skylights for operating rooms; combination sky and wall windows may be used; there will be no amphitheatre, no recovery or anaesthetizing rooms.

MATERNITY DEPARTMENT: One creche to take care of 24 infants; in connection with the creche should be a babies' bath and dressing room, two labor rooms, two delivery rooms, one sterilizing and wash room, one laboratory, one nurses' work room, utility rooms, toilet rooms, diet kitchens, dining room, surgeons' rooms, nurses' rooms, linen closet, airing balconies and solarium which may be used as a day or work room.


PERSONNEL INFIRMARY
CORRIDOR 10' WIDE BY 113' LONG
CORRIDOR
CORRIDOR 10' WIDE BY 113' LONG
EYE, EAR, NOSE AND THROAT
EYE, EAR, NOSE AND THROAT

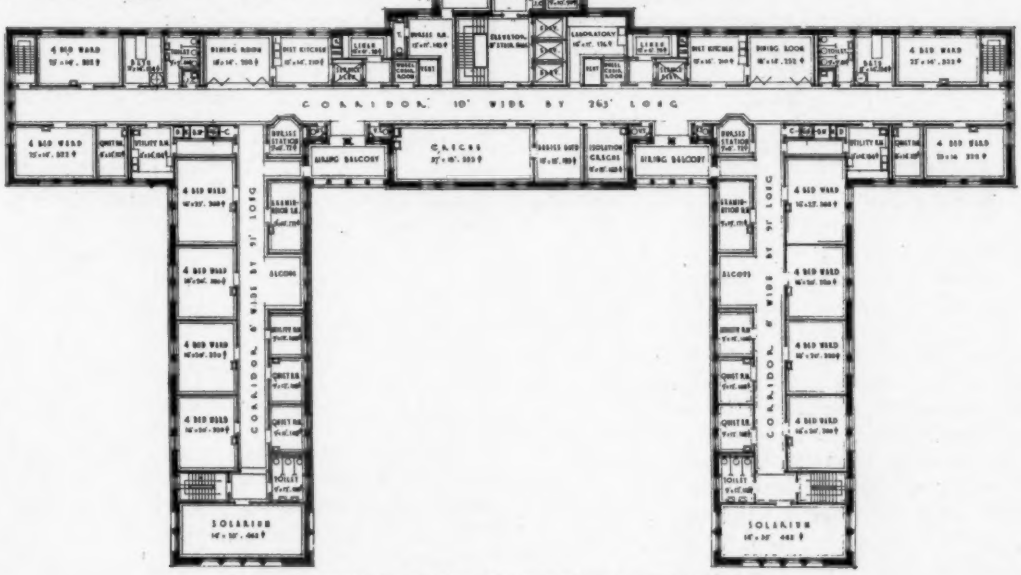
FIFTH FLOOR PLAN, MAIN HOSPITAL BUILDING

OUT-PATIENT DEPARTMENT: This department to have a separate entrance and is to be a unit on the ground floor consisting of: Waiting room, clerk's room, drug room, rooms for social service department, toilets for male and female, examination rooms at least 20 in number, for medicine, surgery, gynecology, pediatric, eye, ear, nose and throat, genito-urinary and dermatology; laboratory, nurses' room, doctors' room with toilet and lockers, record

room with with large vault, X-Ray room with one waiting room, developing room, coil room, dressing room, display room, one room not less than 14 x 20 ft. and one room not less than 12 x 16 ft.

PSYCHOPATHIC OUT-PATIENT DEPARTMENT: A unit on the ground floor with separate entrance and the following rooms: Waiting room, office, nurses' room, doctors' room, six rooms for examination and treatment and necessary toilets.

CULINARY DEPARTMENT: A unit on ground floor, must be of sufficient size to take care of 1,000 bed hospital. Must have kitchen, diet kitchen and serving room, bakery and storage for same, scullery, butcher shop and refrigerators, steward's office, supply receiving room connected directly with large storage room. Convenient connections must be provided for all diet kitchens on upper floors.




FIFTH FLOOR PLAN, MATERNITY DEPARTMENT

DINING ROOM DEPARTMENT: Nurses' dining room, help's dining room, two staff dining rooms, head nurses' dining rooms, internes' dining room and serving rooms in connection with these dining rooms.

ISOLATION DEPARTMENT: This department is to be located on one of the upper floors and is to be shut off from all other departments, and is to have an independent entrance and elevator starting from the ground floor and leading to this department which will have the following rooms: One general receiving room, four single rooms with bath for male patients and three single rooms with bath for female patients and the necessary toilets.

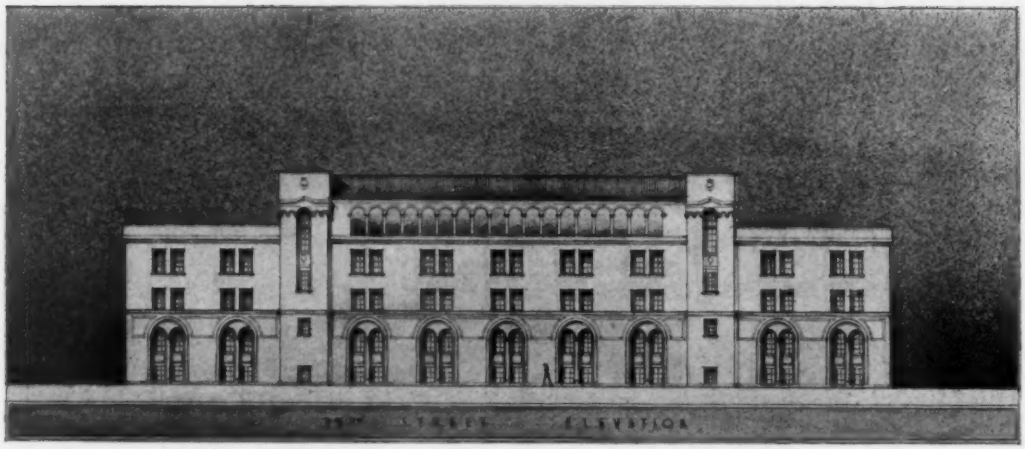
PSYCHOPATHIC DEPARTMENT: This department is to be located on one of the upper floors and shut off from all the other departments. Provision is also required for visitors' rooms and rooms for the use of help, storage and other miscellaneous rooms in the main building.

The laboratory building is to be approximately 50 x 90 feet, with high basement. It is to contain autopsy room with provision for seats to accommodate not less than 35 people, morgue, examination rooms, laboratories, library and miscellaneous rooms connected with the laboratory department, including animal operating rooms.

Nurses' home is to have single rooms for all graduate nurses, single and double rooms for pupil nurses, each room to be provided with lavatory and clothes closet. The single rooms to be approximately 8½ x 16 feet and the double rooms approximately 11 x 16 feet. Bath rooms, sitting rooms, sleeping porches, visitors' rooms and miscellaneous other rooms are to be provided.

The power house, garage, laundry and workshop are to be located in one building of sufficient size to take care of any future additions to the main hospital building.

A tunnel is to be provided of sufficient size and conveniently located to connect the main building with the laboratory building and the power house.



TWENTY-FIFTH STREET ELEVATION, NURSES' HOME

# Statement by the Architects

*Addressed to the Jury, Milwaukee County Hospital Competition, by Richard E. Schmidt, Garden & Martin*

### The Fundamentals

HOSPITAL buildings must be arranged to efficiently permit the science of medicine to do the utmost in the discovery, prevention and eradication of disease. Co-ordination between divisions of the hospital must be facilitated to secure this result. Physicians' dependence on the nursing organizations, domestic and business administration and social service departments is evident. Inadequate, inconvenient or inaccessible arrangements for them would seriously interfere with their efficiency.

Outstanding medical men can be drawn to hospital service only when such arrangements exist.

Economy of operation should be aided in every possible way. As labor is the principal item in operating costs, the arrangement must conserve labor and facilitate supervision.

We have solved the basic problems without sacrificing detailed arrangement.

### Group Plan—Single Building

All patients should therefore be housed in one building to secure

(a) medical efficiency,

(b) economy of operation and of construction.

### Hospitals

The Grand Avenue frontage is reserved for patients as they should have the best exposure and view.

### Power House and Laboratory

Power plant, laboratory and morgue are so located that they are

(a) central and yet isolated from the patients.

### Nurses' Home

The nurses home is well separated and is so arranged that

(a) Amusements will not disturb patients,

(b) Visitors may reach it easily.

### Unoccupied Area

Consistent with therapeutical, clinical and administrative efficiency we have the maximum percentage of open ground area.

### Sunshine

Maximum sunshine for patients' rooms and north light for auxiliary rooms. The proportion of the wings assures sunshine to all parts of the courts.

### Orientation

The long axis of the wards, north and south, insures the maximum and most equitable distribution of sunlight for all beds. Any deviation from this arrangement results in gain to one side and a corresponding loss to the other.

### Entrances

Wells Street is obviously the street from which most visitors will arrive.

The secondary entrance on Grand Avenue is primarily for the motorist.

Service entrances are grouped around the service court, to insure proper control, supervision and the minimum of roadways.

### Future Additions

Additions may be made without disturbing the

operation or efficiency of the building. Basement requirements establish ground area of nurses' home. By removing the sleeping porch on the nurses' home additional stories may be added and old porch replaced.

### Hospital Wards

Thirty bed wards are divided into four bed groups without obstructing complete observation by glass partitions built away from walls, above floor, and 7 feet 0 inch high. These have proven satisfactory at Rigs Hospital, Copenhagen, and at Cumberland Street Hospital, Brooklyn. Advantages are:

1. Greater classification.
2. Abundant ventilation without drafts.
3. Patients do not face light.
4. Reduces distances by shortening wards
5. Unusually large window area.
6. Greater privacy.
7. Less noise.

The typical ward data:

(a) Square feet per bed..... 95.4
(b) Clear ceiling height..... 11.6
(c) Cubic feet per patient.....1097.1
(d) Square feet of window area..... 612
(e) Square feet of window per patient..... 20.4
(f) Percentage of window to floor area.... 21.4%

### Ward Units

The usual long dark hall leading to the ward has been avoided by making the ward unit a "T," resulting in the following important advantages:

1. Nurse from her station supervises entire unit.
2. Corridor is lighted and ventilated from three directions.
3. Distances from auxiliary rooms are shorter than possible with any other plan.

Service and accessory rooms are conveniently arranged. Toilet rooms are provided at each end of large wards. A service elevator for each unit, far more useful and convenient than dumb waiters, opens directly into the ward diet kitchen and into service hall. Each unit on floor may be isolated. Fire escapes (enclosed) as required by State Laws are provided.

### Operating Department

Is adjacent to surgical and eye, ear, nose and throat ward.

### Maternity Department

North wing provides the delivery department well separated from wards and yet conveniently adjacent.

### Psychopathic Department

The disturbed patients are well segregated.

### Isolation Department

In the north wing fourth floor, convenient to pediatric wards and separated from the remainder of the hospital by an open air porch.

### Personnel Infirmary

Is entirely distinct from patients division.

### Administration Offices, Etc.

1. Are of easy access to the public and doctors.
2. No one need enter the patients' quarters to reach this section.
3. The medical library and record rooms are convenient for the staff and medical personnel.

### Out-Patients' Department

1. Most accessible and convenient to the Wells Street surface lines.
2. Adjacent to the admission department so that out-patients may be readily transferred to the "in-patient department."
3. Control is easily exercised by the clerks.
4. The drug room is a dispensing station with a stock of formulary prescriptions and connected to the main hospital pharmacy by pneumatic tube for special prescriptions.
5. The assignment into clinical departments is not shown. It is assumed that the pediatric clinic will be adjacent to the isolation department elevator so that such cases might be temporarily transferred to this department, when necessary.

### Medical Personnel Quarters

Are well segregated from the hospital. May be entered without passing the patients' quarters. Each interne has a single room.

### Roof Gardens

Though none was required we have provided these as being necessary for the convalescent and for Heliotherapy.

### Culinary Department

Is conveniently located for ward diet kitchens and the dining rooms. Ample space and convenient arrangements have been provided for the ultimate, 1,000-bed hospital.

### Basement

None is called for in the program. We believe it to be very necessary for,

1. Ground floor is used for many departments in which a large number of pipes on the ceiling would be objectionable.
2. Communication is maintained between hospital, laundry and laboratory building. Bodies, soiled linen, etc., must not be transported through departmental corridors.

### Circulation

The travel of patients, visitors, personnel or goods is such that they may enter and leave the hospital and their departments without passing through any other department; and, will always be under supervision.

### Nurses' Home

The plan presents these principal advantages:

(a) One entrance, easily supervised.



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(b) Entertainment room separated from sleeping quarters.

(c) Sleeping porch in the most desirable place, the roof.

(d) Hospital superintendent completely isolated.

LABORATORY

The advantages of the plan are:

(a) 400 feet of north frontage for laboratories.

(b) Concealed open air animal runways.

(c) Direct and inconspicuous underground passageways to hospital for removal of bodies.

(d) A funeral exit.

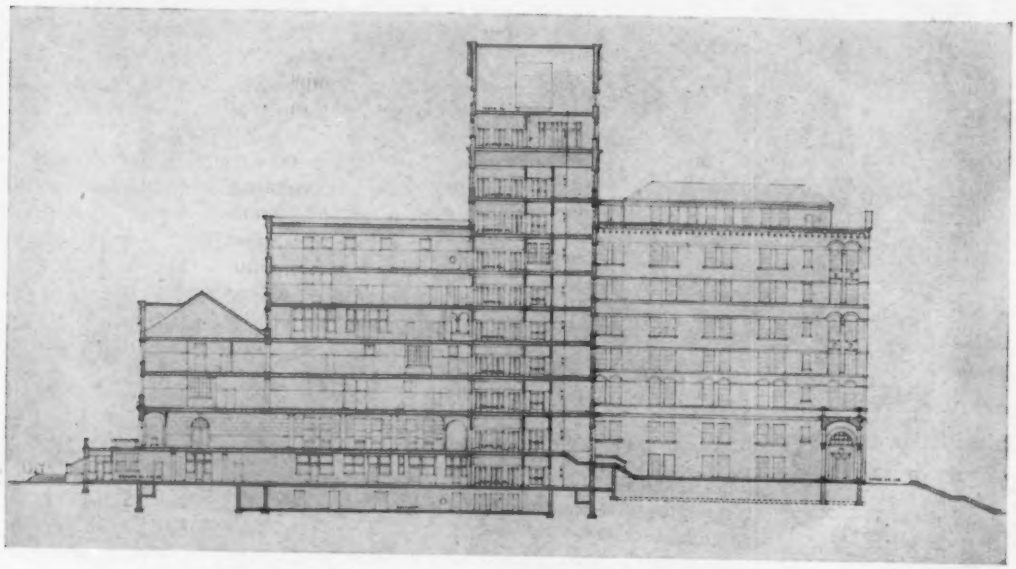
POWER HOUSE, GARAGE, WORKSHOPS AND LAUNDRY

The completed group will require three-350 H. P. boilers. Initial installation will be two.

Laundry is one large room for the best supervision and ventilation.

CONSTRUCTION

The main hospital building and the central portion of the Nurses' Home would be of skeleton frame reinforced concrete construction, other portions would be wall bearing large wards without columns, except in the exterior walls, elsewhere a row of columns in addition to the wall columns would be required.



LONGITUDINAL SECTION, MAIN HOSPITAL BUILDING

## The Housing Problem

(*Continued from page 630*)

business. Yet the banks seemed to have failed in realizing that fact, or, realizing it, they have overlooked it. They are not lending money upon real estate, or to the small home builder. They are putting that money out in call loans, or in industries where their money may be easily liquidated.

"By that they are working against themselves. They are promoting—directly or indirectly—a restless spirit among a great many persons, because the lack of a home or of a permanent residence is always productive of restlessness. It may be to the advantage of the bank at the present moment to put their money out on call loans or in other liquid loans, but it certainly will not be to their advantage ten or fifteen years from now, provided they do not alter their present viewpoint *now*, at this immediate moment. It is my firm belief that it is far better for a bank to put up with a financial loss, if necessary, rather than jeopardize the future, some ten or fifteen years from today, by neglecting to make conservative, constructive Americanization possible at the present moment. And the banks know that their very life and future depends not upon the man without a home, but on the man who owns his home. A very great percentage of investors and of bank deposits come from men who own their homes. There is no better incentive to thrift and conservatism than the ownership of one's own home."

"Are there any loan organizations which will still make loans upon real estates?" Mr. Day was asked.

"Very, very few," he said, "and among that small number is the Metropolitan Life Insurance Company. I am a director in that company, and I have faith enough in my belief in the value of the home as an instrument of Americanization to insist upon and heartily endorse that company's loans upon real estate, even at this unsettled period. One hundred $5,000 loans were recently made by that company for 100 houses. I consider that as effective and direct a solution of the housing problem as there is."

"But does that remedy the financial situation as a whole?"

"No. For that purpose a committee of the real estate operators all over the country has proposed a law to our Federal Congress which would make mortgages on real estate tax-exempt up to $40,000. That would be a splendid inducement, and would do a great deal toward the solution of the problem on a nation-wide scale."

"Has the lack of building any effect on land values?"

"That is precisely what has kept them down. And, regardless of location or any of the other elements that enter into a land value, they will stay down until building is resumed. That works havoc with persons who have land and who wish to sell it. It deprives them of an effective means of raising money for legitimate business enterprises, and therefore adds to the already overstrained credit situation. The banks are forced to meet the heavy demands for credit, and the banks have, in a measure, caused that situation.

"If a just proportion of the financial resources of this country were taken from the call money market, from Government and railroad bonds, and from industries where loans are easily liquidated, and put into the hands of people who want to build, every business in the country would feel the beneficial effect of such a move, and radicalism would find itself put to in any attempt it might make to fasten itself upon any portion of our population."

IT is interesting to note that while the basic reasons for the present retardance of housing might be plainly discernible to trained observers, and there might accordingly be expected what would practically amount to a unanimity of sentiment, yet there actually exists a wide divergence of opinion.

With the intention of avoiding any attempt to discuss these many points of view and in order to permit the reader to draw his own conclusions, no analysis is attempted. Yet it may be permissible to direct attention to the fact that the present inability of those who desire to build houses to secure the necessary funds on a straight six per cent. basis, or the legal rate of interest, receives no attention from those interviewed by the representative of this journal, and it may therefore be that the "ultimate consumer" has been ignored in this investigation and that his side should be presented as well.

A careful canvas of the building field results in a firm impression that by no means will building costs be lowered in the future in larger proportion than costs of any other commodities. Further it appears to be a well grounded belief that there may not be expected for a number of years any appreciable diminution of costs even in the all important and dominating item of labor.

Further to postpone any proposed building operations would, therefore, only tend to increase the present unfortunate conditions as to housing, and invite a self denial that would bring no adequate return. This principle has been thoroughly discussed with those whose opinions as to what is retarding building are so much at variance, but who are so thoroughly agreed as to the futility of further postponing building in the hope of an early lowering of costs.



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# *Detail of Doorway, Old Town Hall, Hartford, Conn.*

*(See reproduction of the original drawing by O. R. Eggers in this issue.)*

*IN an earlier issue there was presented a general view of this fine old building. The accompanying detail is, however, so very good that Mr. Eggers has wisely considered it worthy of his pencil.*

*The doorways of the public buildings in New England that were erected during our Colonial period have become accepted as the most valuable precedents of correct proportion. Our readers will agree that the present example is worthy to be classed as a fine example of good proportion and correct design. It carries with it all the marks of long usage and bears the old hardware or a replica of the original, that adds a graceful simplicity to the whole effect.*

DETAIL OF DOORWAY OLD TOWN HALL, HARTFORD, CONN.
*THE AMERICAN ARCHITECT Series of Early American Architecture*

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# EDITORIAL

## The American Specification Institute

IT is probable that few members of the profession will disagree with the statement that, considered broadly, the preparation of specifications receives less study and attention in proportion to its importance than any other phase of architectural or engineering practice. It is generally conceded that there is need for accurate, concise, yet comprehensive specifications in order to secure the best results from any set of plans. Yet to many architects and engineers the task of their preparation is onerous, and in order to produce a written document to accompany the drawings they sometimes even resort to the re-working of old specifications. It is usually discovered later that they do not accurately apply to the work in hand.

The dearth of good specification writers is also evidenced by the fact that those architects whose practice is sufficiently large to justify the employment of men to write specifications as their sole duty in the organization have experienced the greatest difficulty at times in securing men in whom they can repose entire confidence.

THE AMERICAN ARCHITECT has for years recognized the vast importance of specification writing, and has urged, editorially, improvement in this branch of architectural practice. It has advocated unceasingly the definite specification, the elimination of all ambiguous or meaningless clauses, and the qualification of the person undertaking the writing of specifications for the particular work in hand. As a further aid in this work THE AMERICAN ARCHITECT Specification Manual has been produced and distributed among architectural offices of this country to place before architects specifications covering the use of various materials and equipment, these specifications having had the approval of the manufacturers themselves.

There is, however, much more that can be done. The field is so large that what has already been accomplished is, in reality, simply a scratching of the surface. Unlike various branches of engineering, which have their text books, rules and formulæ, the art of specification writing has not been made the subject of concerted investigation. This is undoubtedly due, in part at least, to its very nature—that is, the necessity for treating each document as an individual problem, separate and distinct from all others. This has been the stumbling block to all attempts to produce standard specifications. Then, too, the extensive field that a specification must cover has seemed to preclude the production of anything comprehensive and appropriate under all conditions.

In our architectural schools, in the ateliers and in the various courses given, instruction in specification writing has been neglected to such an extent that those to whom the task of specification writing has fallen have usually been forced to educate themselves. As a natural sequence of this condition we find too many inaccurate and incomplete documents accompanying drawings under the guise of specifications.

It is true that the means for proper education are at the disposal of practically every architect or specification writer located in the larger cities—if he knows how and where to look for the necessary information—but the great amount of time that it has been necessary to spend in research in order to secure and properly arrange the data sought for apparently has proven too great a barrier for the majority of specification writers to surmount.

It is because of these conditions that THE AMERICAN ARCHITECT notes with the greatest satisfaction the initiation of a movement to organize *The American Specification Institute* along the lines of the National Professional Societies. As outlined to this journal, its members would be those who spend all, or a considerable portion of, their time in specification work, and its patrons would be those architects who earnestly desire the elevation of specifications to their proper place and importance in professional practice, and their general improvement in character.

It is obvious that *The Ameican Specification Institute* should have as its fundamental purpose the education of its membership so as to assure better and more uniform specifications, the dissemination of information relating to the production of raw materials, their manufacture or fabrication into finished products, and how, when and where to use the different materials. When the specification writer has acquired a thorough understanding of the materials and equip-



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ment described and called for in his specifications he will be able to write more intelligently and produce a document that will furnish protection alike to the client, the architect, the builder and the manufacturer.

THE AMERICAN ARCHITECT believes that in the formation of such a body as *The American Specification Institute* and its active support by architects who realize the utter necessity for the best specifications it is humanly possible to produce may lie the solution of the question that has been such a burden in consruction work.

In order to foster the movement and provide a channel for the dissemination of news, information and reports THE AMERICAN ARCHITECT will gladly open its columns to the *Specification Institute* and devote the necessary space in each issue for the reporting of its activities.

There seems little doubt that the *Specification Institute,* if wisely formed and managed, will rapidly gain an enthusiastic membership, and it would seem that it might confidently anticipate equally enthusiastic support from the architectural and engineering professions. Now, during the formative stage, is the time for those interested in this subject to give expression to their opinions, and THE AMERICAN ARCHITECT will take pleasure in publishing comment on this subject, believing that those engaged in the formation of this new body of professional workers will welcome constructive suggestions.

## Architectural Competitions

IS the method of the Institute in its conduct of competitions suited to present day practice of architecture?

On page 158 of the published proceedings of the Institute's Fifty-third Annual Convention, it is stated that one chapter reported to the Committee on Competitions that the representative of a large corporation refused to adopt the advice of the chapter's subcommittee regarding a competition which the corporation proposed to establish, and stated publicly in a meeting of engineers that "the American Institute of Architects is fifty years behind the times."

It needs no argument to prove that if competitions are to be as their name implies, a contest among architects for a specific commission, they must be conducted in an absolutely businesslike manner. In this direction the importance of the architect's business training, as shown in his representative organization, becomes at once apparent. The prime purpose of a competition is not only the evolvement of some beautiful features of design expressed in all the artistic dexterity of renderings and cleverly executed drawings of plans, but it is logically the creation of a building that will also have every element of adaptability for the purpose for which it is created.

Probably architects will need to spend more time and harder study on the latter feature, the purely utilitarian elements. And the introduction of these elements will naturally require a very thorough business attitude on the part of architects. That architects do not always present this attitude as in the case above referred to, and that the correct business approach had presumably been lacking in many other instances, undoubtedly caused the harsh criticism which was made by the manager of this large corporation.

Owners undoubtedly have rights in matters of competition, and these the present code does not always carefully consider. The proposal of the Boston Chapter to the last convention to insert in the competition circular the statement that the Institute recognize the right of an owner to employ several architects at the same time on the same problem and to pay them for their services without the use of a program and without declaring such an arrangement a competition, was warmly debated at that session. It was referred to the various chapters, who were directed to send to the Board of Directors a digest of opinion, so that the next convention might take action.

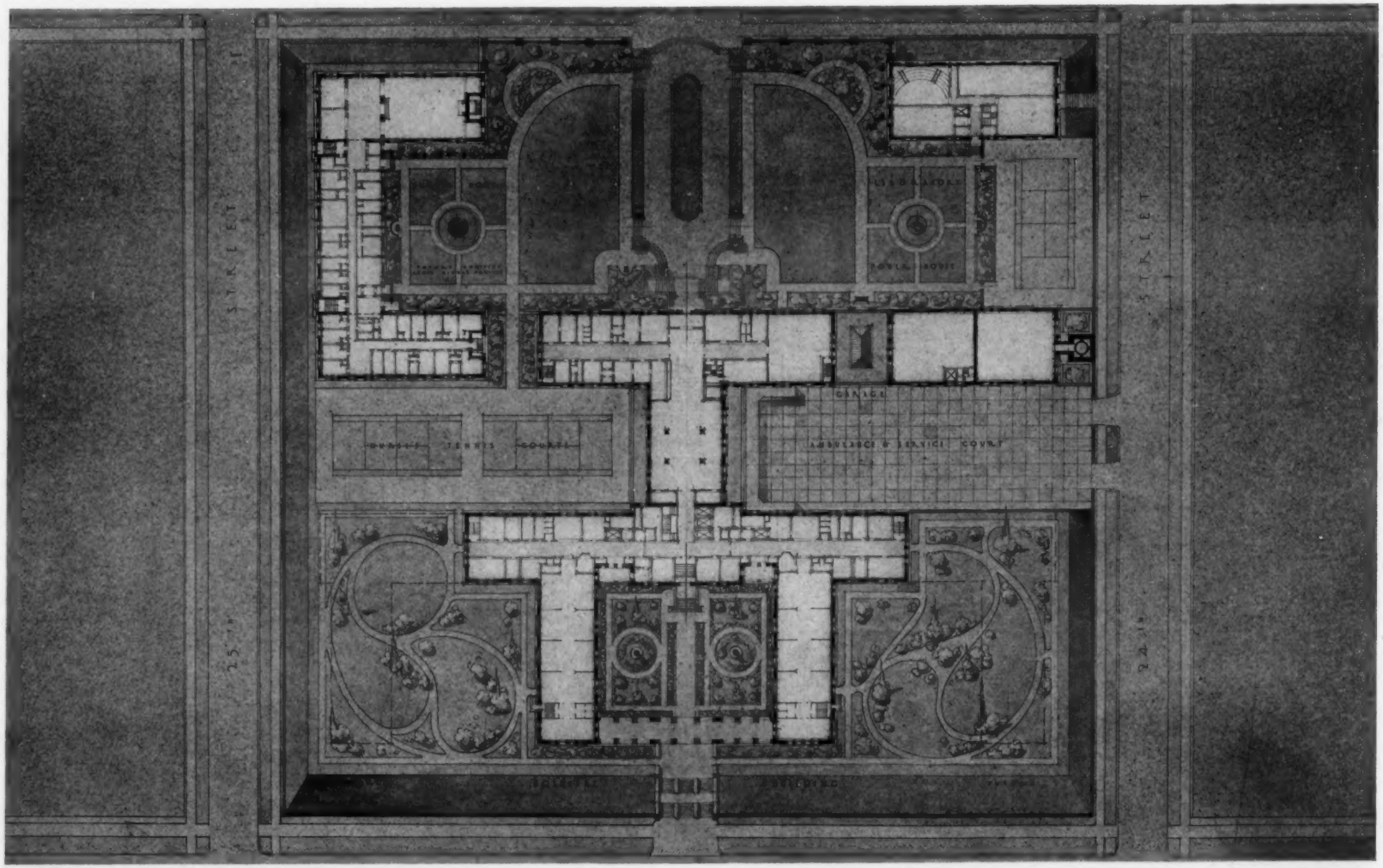
In view of the widespread dissatisfaction expressed as to some recent competitions, it would seem to be highly desirable that this digest of opinion be promptly and clearly set forth. Members of the profession who regard competitions with favor, and others who do not, should provide suggestions that would enable the Committee on Competitions to frame and present to the next convention a new competition program that would be so modern and so businesslike in all its aspects as for all time to make untruthful the assertion that the Institute's methods in conducting competitions are not progressive and up-to-date.

There has been strong opposition in the Institute to competitions for a number of years. This opposition has in a measure been overcome by the contention of those who warmly support competitions that the requirement of a comprehensive report by the Jury provided a feature of great educational value to the competitors and other architects who would study the results.

Besides presenting documentary evidence of an equitable adjudication in strict accordance with the terms of the program and giving assurance that nothing but the purely artistic aspect had been considered, the report of a Jury begets confidence and silences all the many murmurs of discontent that are the inevitable consequence when the Jury has failed in this direction. Further, it has been asked if the failure of a Jury to make such a report would not establish a basis on which to begin action to set aside its decision.



NOVEMBER 17, 1920 THE AMERICAN ARCHITECT




PLOT PLAN

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

RICHARD E. SCHMIDT, GARDEN & MARTIN, *ARCHITECTS*

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GRAND AVENUE ELEVATION, MAIN HOSPITAL BUILDING

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

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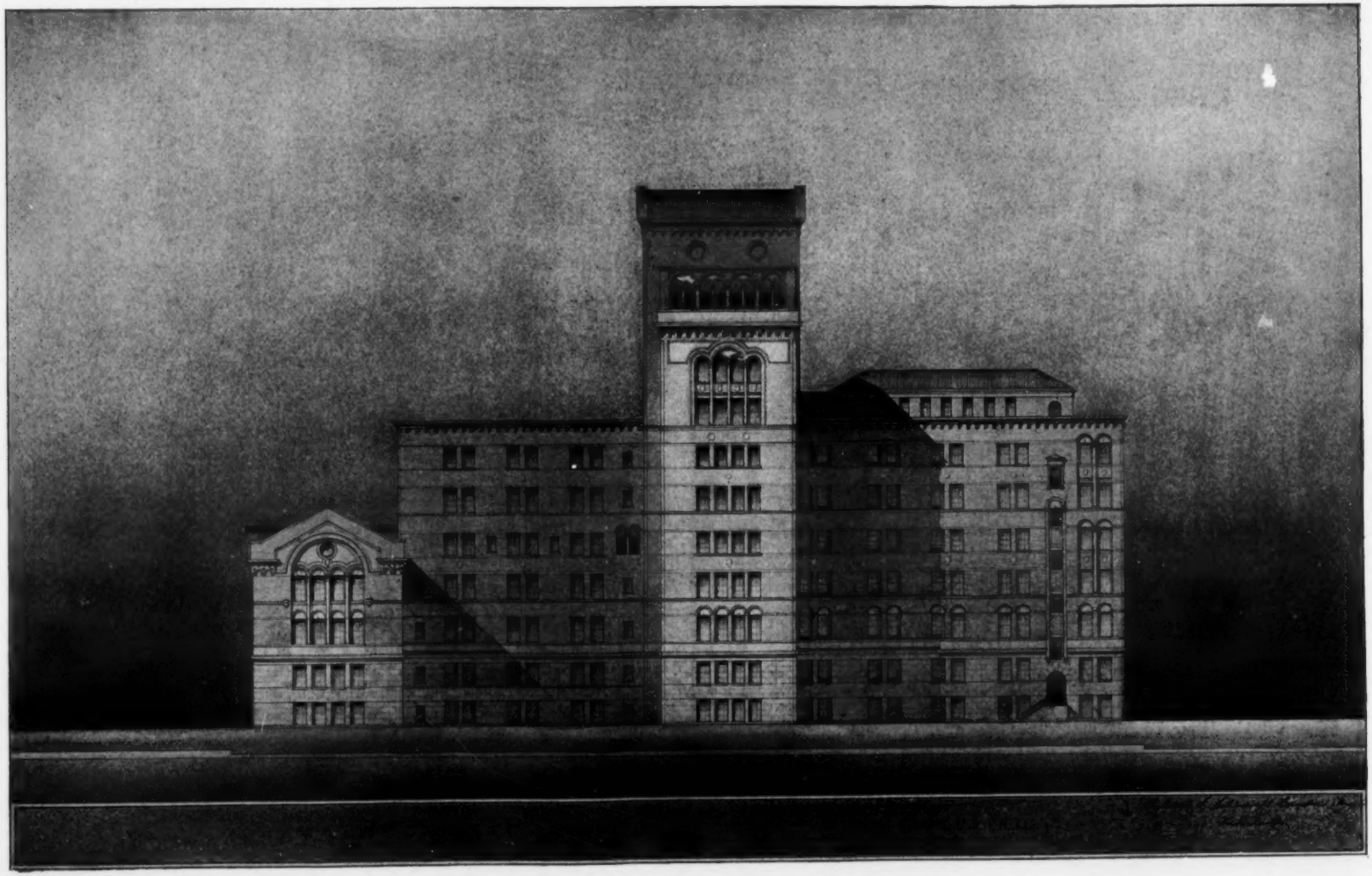
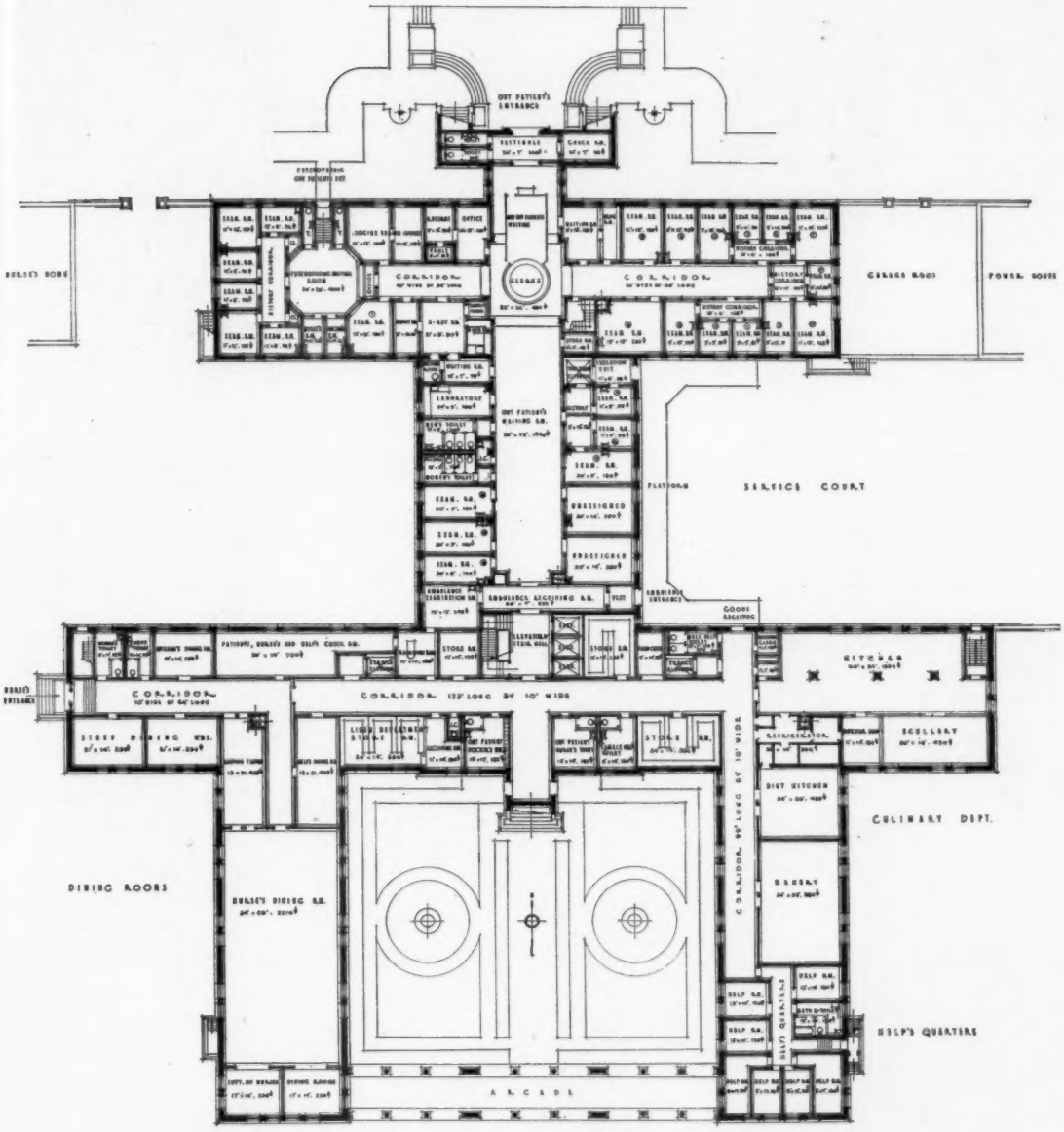


TWENTY-FIFTH STREET ELEVATION, MAIN HOSPITAL BUILDING

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

RICHARD E. SCHMIDT, GARDEN & MARTIN, *ARCHITECTS*




GROUND FLOOR PLAN, MAIN HOSPITAL BUILDING

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

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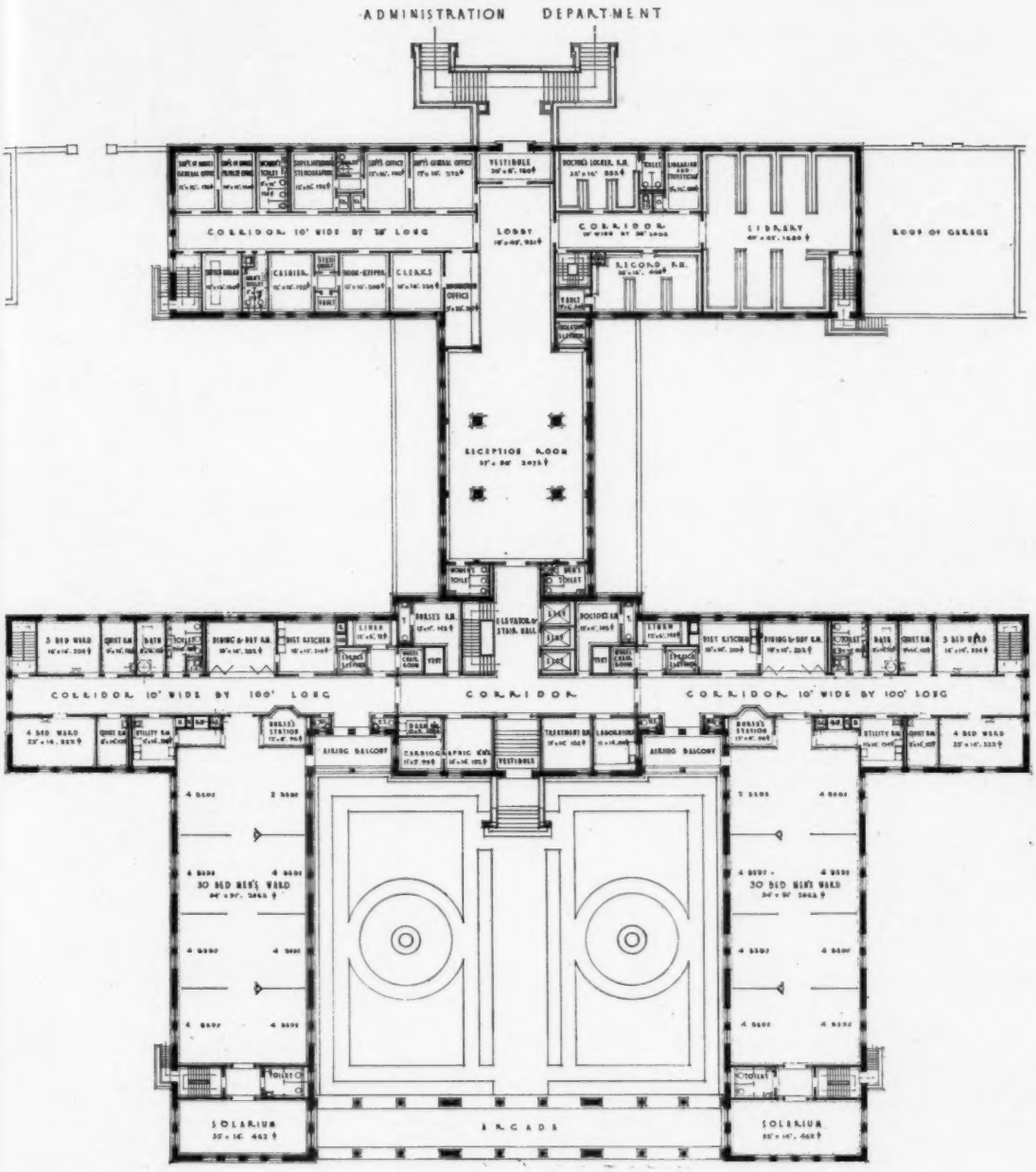
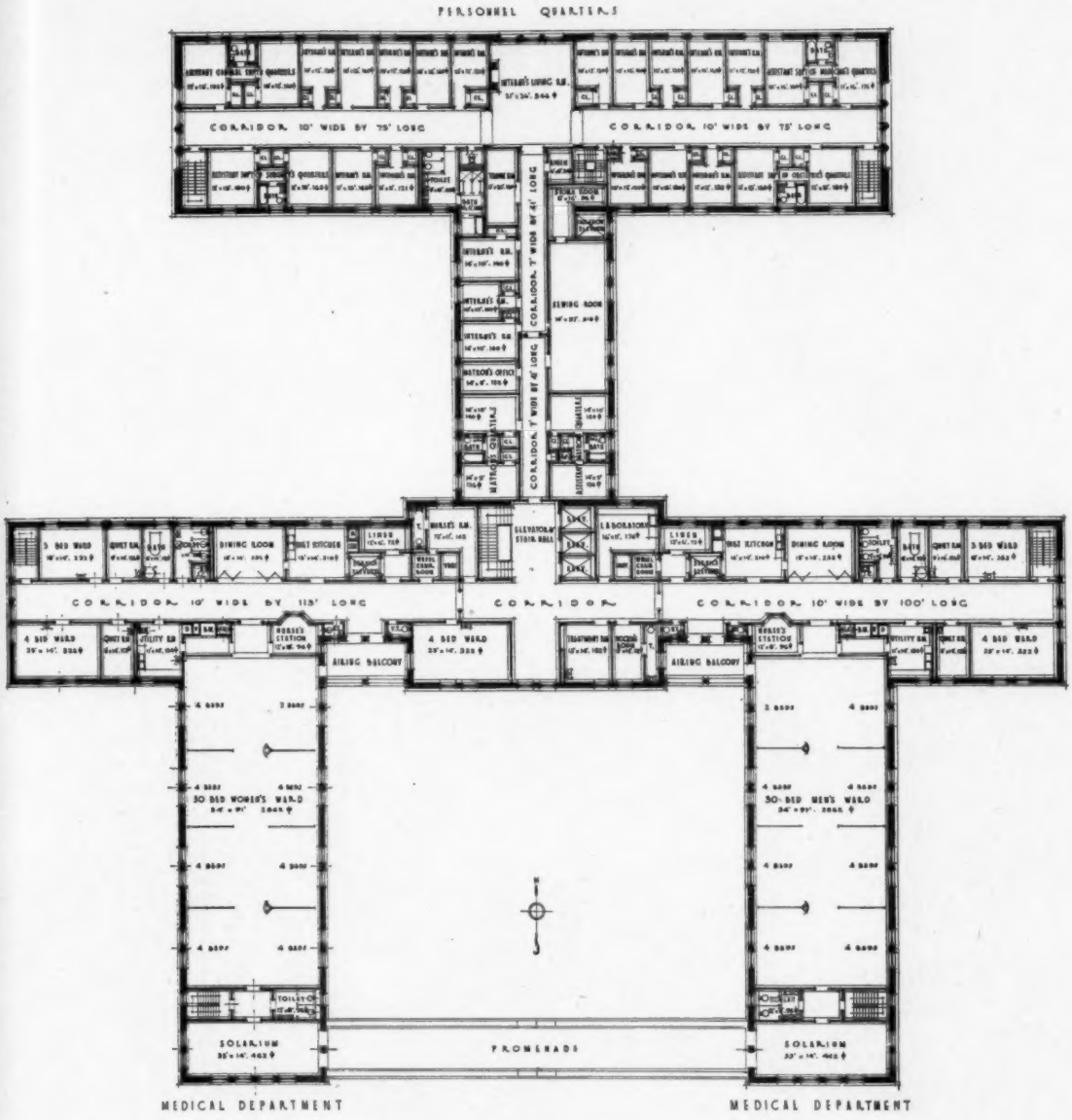



FIRST FLOOR PLAN, MAIN HOSPITAL BUILDING

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

RICHARD E. SCHMIDT, GARDEN & MARTIN, *ARCHITECTS*




MEDICAL DEPARTMENT AND PERSONNEL QUARTERS

SECOND FLOOR PLAN, MAIN HOSPITAL BUILDING

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

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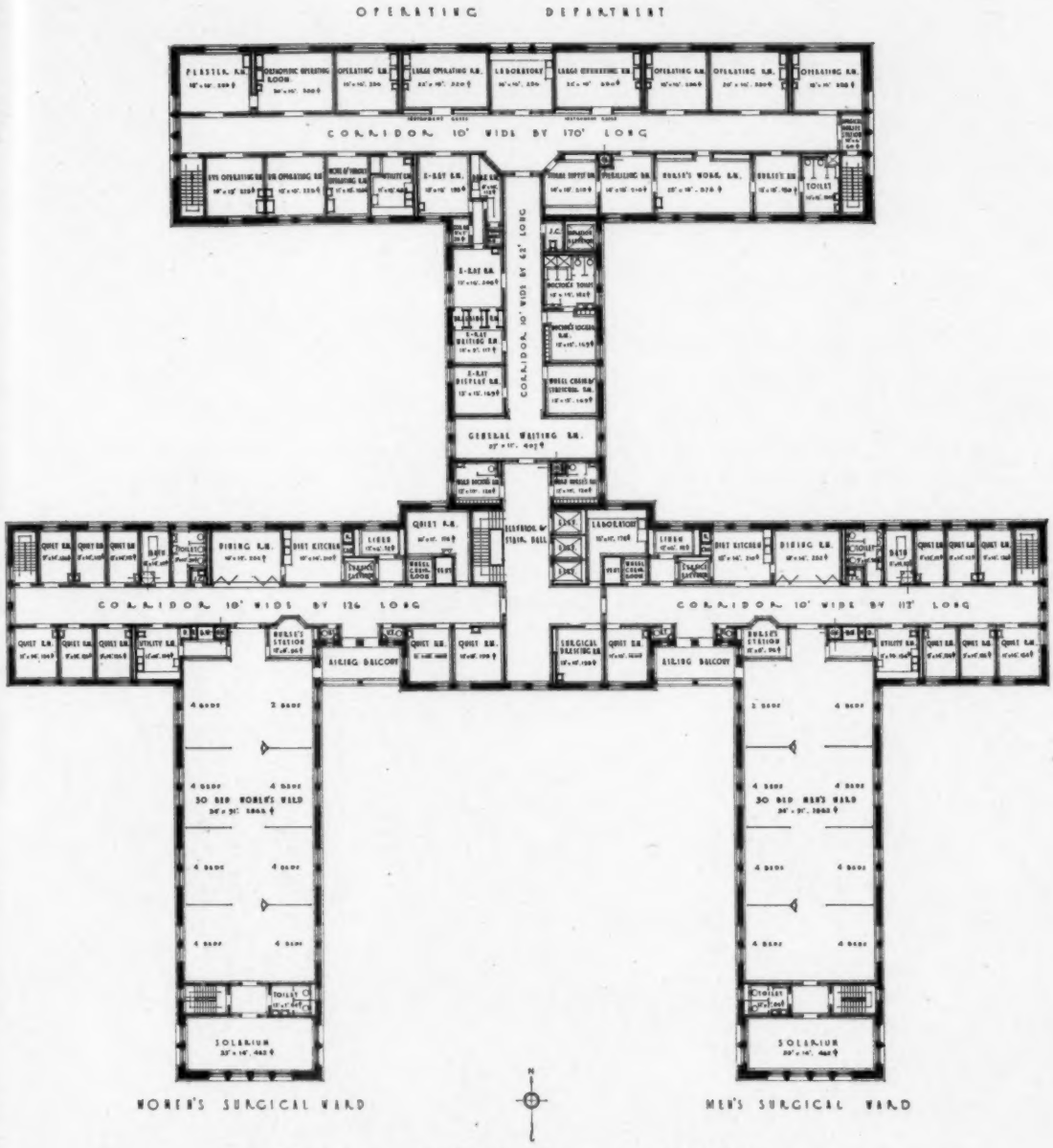


SURGICAL WARDS AND OPERATING DEPARTMENT

THIRD FLOOR PLAN, MAIN HOSPITAL BUILDING

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

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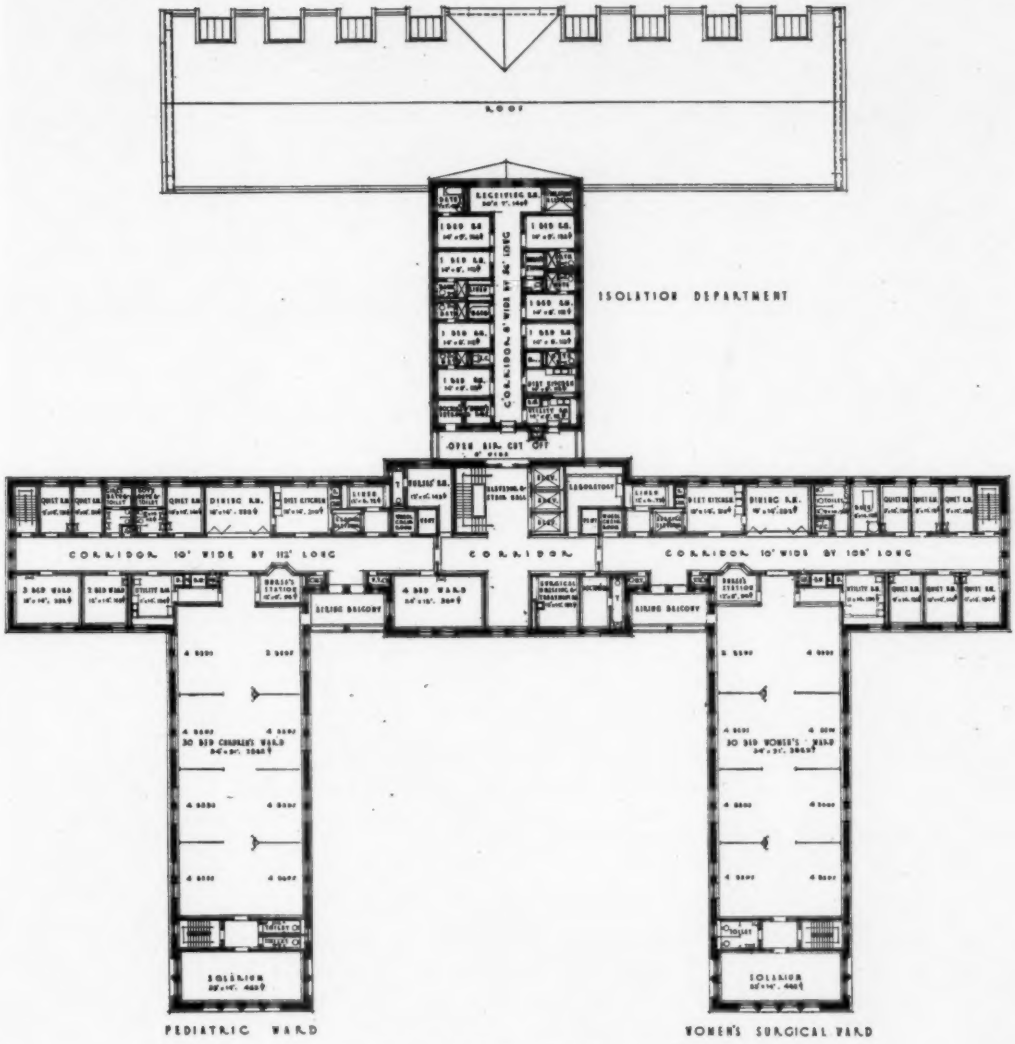


WOMEN'S SURGICAL, PEDIATRIC AND ISOLATION WARDS

FOURTH FLOOR PLAN, MAIN HOSPITAL BUILDING

AWARDED SECOND PRIZE, COMPETITION FOR MILWAUKEE COUNTY GENERAL HOSPITAL

RICHARD E. SCHMIDT, GARDEN & MARTIN, *ARCHITECTS*

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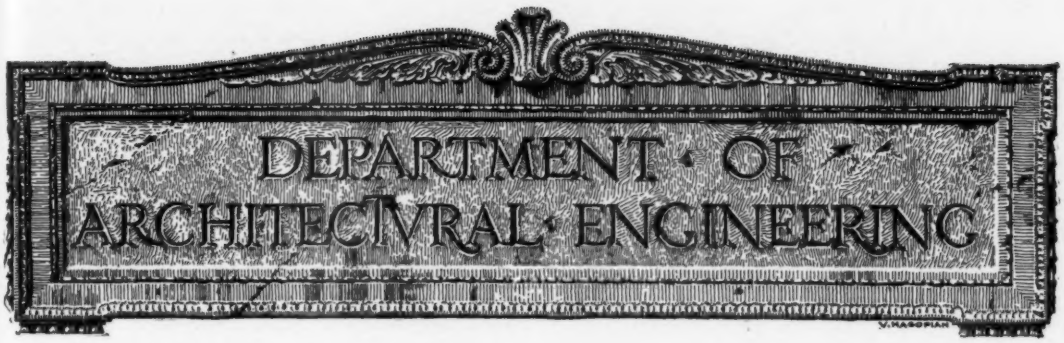



# The Artificial Illumination of Motion Picture Theatres

## Present Abuses and Suggested Improvements

## Part I

THE growth of the motion picture industry has been phenomenal. This growth is evidenced by the continued increase of motion picture theatres. Contrasting the "movie" of ten or fifteen years ago with that of today, no one will deny that a vast improvement has been made. There is one phase, however, which it would seem still requires much improvement. This is the subject of artificial illumination. It is the purpose of this and the following article to point out some of the present defects, as well as methods whereby they may be corrected.

Perhaps no one person is more familiar with the motion picture theatre as it exists throughout the entire country than Mr. E. L. Bragdon, Technical Editor of *Motion Picture News*. In an address before the Illuminating Engineering Society, as relating to the need of improvement in the artificial illumination of motion pictures, he stated in part:

"The theatrical or exhibiting end is the phase of the film business that comes nearest to the public. If ever any part of an industry needed expert aid, it is the exhibiting end.

"There are really two fields in the theatre to be considered, that of auditorium illumination, and of projection.

"There are approximately 14,000 theatres in this country devoted to the motion picture. This number includes the 'Palace of the Cinema' in the big city as well as the once-a-week-on-Saturday-night show given in the 'Grange Hall' in some Wyoming cattle town. It is interesting to note that of the 14,000 theatres, over 65 per cent. or nearly 10,000 theatres have a seating capacity of 600 or less. This fact has been ascertained through research and records.

"Six hundred seats, mean the community house attended by the general public. It is the place where public opinion regarding motion pictures is formed and for that reason this size of theatre is a good one to keep an eye on. It is also well to give the patrons of these houses the best available insofar as possible, and that is what they are not getting as regards illumination.

"The illumination in these small theatres is, as a rule, *exceedingly poor*. Designed in most cases by a local architect, or more probably a contractor, the theatre is built and then the lighting scheme added as an accessory, much as a theatre manager goes out and buys his seats. A study of interiors of the average small theatre will often show that in one spot on the ceiling where an indirect fixture should have gone the decorator has thoughtlessly placed a beautiful figure of some dryad disporting herself. Naturally a lighting fixture must go elsewhere. According to practice, the decoration comes first. I don't know exactly why, because the patrons attend the theatres (at least after its opening night) to see the pictures and not to sit back and dream about the allegorical figures on the walls and ceilings. I do not advocate the abolishment of decorations, they have a place of their own in theatres, but I do decry the placing of decoration before illumination for reasons which will be referred to later on.

"You may also have noticed the persistency with which candelabra brackets are placed in every panel

on the side walls. Invariably these shine directly into the faces of those in the balcony with serious effects on the vision. Why this is done, I do not know. The most plausible answer seems *imitation.*

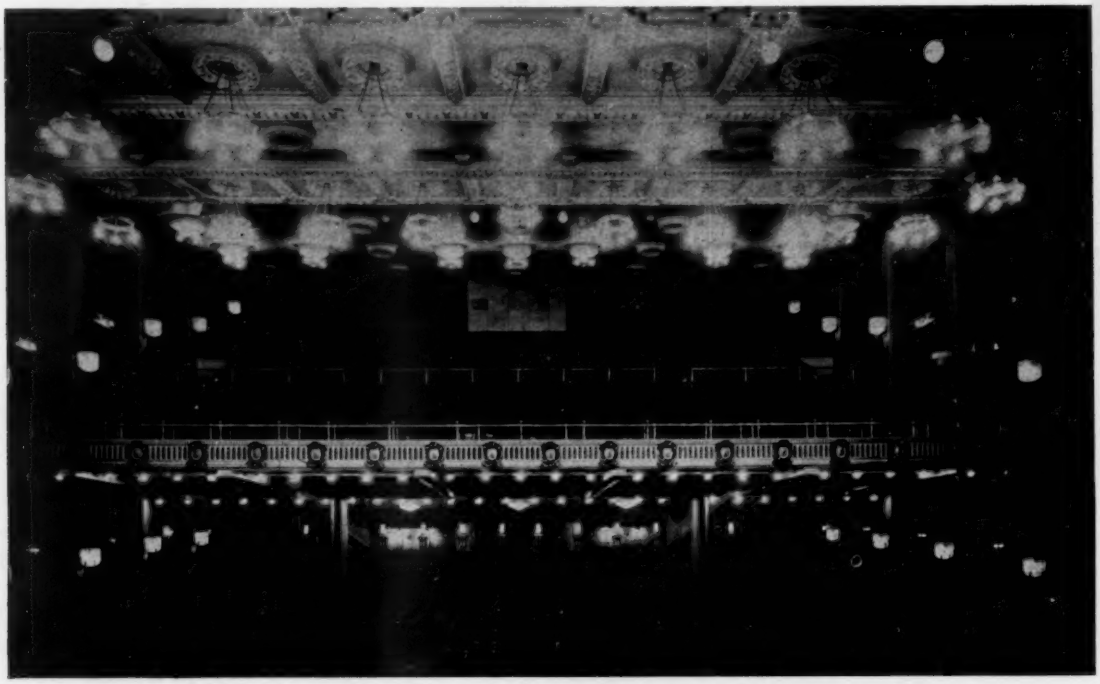
"In general the theatres today are too well or too poorly lighted. This may sound like an aphorism but it is a fact nevertheless. It is rather strange, too, when you consider how simple it would be to travel the broad middle path of just about enough light.

"Going back into the history of the industry it appears that the first motion picture exhibition was held in a store. When the audience had been enticed into the place the lights were turned out and the room made pitch dark. Then the show started.

"This method of handling the illumination of the auditorium should have disappeared early. But it did not. Only last week I happened to enter one of Broadway's leading theatres and was greeted by as dense an atmosphere as one could wish. I stumbled over a floor ornament just inside the door and finally had to be led to a seat by a torch bearing Aurora. The absence of light in that theatre was positively painful. Broadway screens are lighted to a minimum from the projection arc and the contrast between the screen surface and the surrounding areas was exceedingly vivid. My companion went to sleep in the middle of the picture, claiming that his eyes ached. It was easy to understand why.

"To show the other side of the question the accompanying picture illustrates what happens when a motion picture theatre is built for beauty and not for motion pictures. The photograph was sent by a theatre manager who wished to show me what wonderful illumination he had in his theatre. I will let you judge for yourself.

"It is possible that an electrical contractor *might* have put in a few more fixtures but I firmly believe there must be a hidden beam or a ventilating duct in the spaces which are bare of lamps.



OVERDOING THE LIGHTING OF A MOTION PICTURE THEATRE

"Seriously, the lighting of theatres is a real problem. It has been overlooked in the past. As a result the optometrists or the opticians are using the motion picture as an argument for the wearing of spectacles. This should not be. Moreover, it must not be for the good of the industry.

"Without going into the preliminaries of the separate factors, the fundamentals of theatre illumination are as follows:

1. Keep as much light as posible away from the screen surface.
2. Present as little contrast as possible to eyes of the audience when viewing the picture.



XUM

3. Make the transition from afternoon sunlight or evening "white way" lighting to the viewing position as gradual as possible.

"A casual study of these broad principles will show that the perfect theatre whenever it is built, will have considerable illumination at the rear, decreasing gradually as one walks toward the front of the house. The light will be reflected chiefly from walls and ceilings with a minimum of direct illumination, and all the light must be so directed that the shadows of the screen are not veiled. This seems rather difficult, but it can be done, and will be done as soon as architects and builders realize the value of correct illumination.

"This means that the present brilliant music stand lights of the orchestra will have to be moderated. Several ways of doing away with the evil of the orchestra light have been suggested, but none is conspicuous by its practicability. One man has even suggested the printing of the music score in radium ink on black paper, but his suggestion was not considered as of much worth.

"I could go on in this manner for many minutes relating the abuses of illumination in the average theatre, but the narrative would tire you. When all the facts are sifted to their essentials it is found that the whole problem is one of co-operation between architect and illuminating engineer.

"A few words concerning the projection end of the theatre work are in order. This, of course, is also a problem of illumination. The problem is to get a steady and easily controlled, concentrated source of light, of high brilliancy, and to pass through the standard optical system as high a percentage of light as posible. To give you an idea of the troubles encountered in the projector of today consider these figures of 100 per cent. of light at the source:

25 per cent. reaches the condenser lenses,
80 per cent. of that reaches the film,
75 per cent. of that reaches the shutter,

and for good measure the shutter borrows 50 per cent. of that. Thus, only four-fifths of one per cent. of the original light reaches the screen. There are too many middlemen and each is a profiteer.

"The illuminating engineer is needed badly here but the field is a special one in optics and will demand a great deal of work before much is accomplished. What forms these improvements will take would be but a surmise.

The incandescent lamp is a wonderful possibility. I have always had faith in it and feel surer of myself at this moment than ever before. It will not supplant the arc; each has its field and they are both big fields, worth cultivating in the right way.

"In closing, I would like to emphasize the fact that, of the whole industry, the greatest need for the illuminating engineer, his theories and his experience, lies in the field of theatre illumination. As now carred out it is unsatisfactory and something should be done at once to correct the evil. On my desk I have a card index of new theatres upon which building has begun since the first of the year. Probably there are 600 of them and it is fairly safe to say that of these 600, 550 will be lighted the same old way without thought on the part of the owner and architect. Eventually it is to be hoped that the combination of illuminating engineer and architect will solve the whole problem."

The statements made in this address by Mr. Bragdon may not be lightly waived aside. They are serious. In the early development of this class of structure, there may have been a legitimate excuse for poor lighting, but today, with information available on the subject, no architect can honestly excuse himself for being a party to the continuance of improper lighting.

In the next article the results of tests made to determine the proper light intensities in various parts of the motion picture theatre, and suggested methods of properly placing the sources of light will be presented.

## Engineers Discuss Transportation

AT a meeting of the New York Section of the American Society of Civil Engineers held at the Engineering Societies Building, 29 West Thirty-ninth street, October 13, the topic, "Local Distribution of Freight and Food Products," was discussed.

The principal paper upon this subject was presented by Colonel Charles D. Hine of the old 69th Regiment, now special agent, Erie Railroad at New York. Colonel F. A. Molitor, of the 22d Engineers who holds the position of operating head of the Citizens' Transportation Committee, also presented a paper dealing with this subject.

The Merchants' Association was represented by Mr. W. H. Connell, assistant manager of the Traffic Bureau, who traced the events leading up to the appointment of the New York-New Jersey Port Terminal Commission, the efforts of the Merchants' Association to inaugurate store-door delivery, and various rules, regulations and practices adopted by the carriers in an effort to eliminate waste in transporting goods to, from and through New York.

Other men, who have devoted considerable study to this matter, discussed the subject in its several phases.

The meeting was one of the most interesting held in some time, and was well attended. The New York Section has arranged a program for the coming season, which includes a number of other local problems of equal interest.

# The Insulating Value of Various Coverings for Hot Air Pipes as Determined by Tests at the University of Illinois

THE coal question, a serious one during the war, is yet with us, and as acute, if not more so, than in 1917. When we consider that only a litle over one-half of the heat value contained in the coal is utilized by present methods of heating, it becomes increasingly important to stop the leaks wherever they may be found and are capable of stoppage. A great quantity of coal is annually consumed for domestic heating purposes, therefore, the more efficient such heating installations are made, the further will a ton of coal go. Conservation of coal is most desirable. Previous wasteful methods should be corrected. In this connection, therefore, it is interesting to note the results of tests as presented in a report issued by the Engineering Experiment Station, University of Illinois on the "Emissivity of Heat from Various Surfaces," this report having special reference to warm air furnace installations. The report is made by V. S. Day, research Assistant, and acknowledgment is made of the valuable assistance of Professors A. C. Willard and A. P. Kratz.

The work reported upon was done in connection with the Warm Air Furnace Investigation now in progress at the University of Illinois. This investigation has for its object the determination of the efficiencies and capacities of warm air furnaces and a study of the proper conditions of installation and operation, so that furnaces may be accurately rated and properly selected for the requirements of actual service. The work is being conducted under a co-operative agreement between the National Warm Air Heating and Ventilating Association and the Engineering Experiment Station of the University of Illinois.

### Testing Equipment.

The aparatus used in the tests, illustrated in Figs. 1 and 2, consisted of low pressure steam heated drums, five in number, surrounding a central steam header from which the drums drew their supply of steam. The drums were accurately uniform in size, ten inches in diameter by twenty inches in length and were made of sheet metal of the kind to be tested. Steam was condensed in the drums by the cooling action of the air surrounding them and was discharged through water seals connected to each drum. These seals were U-tubes made of pipe, and were long enough to contain a water head of four feet. As the steam condensed the seals became filled with water; the condensate then dripped over into receivers as fast as it accumulated. The water in the seals cooled to room temperature before it dripped into the receivers so that evaporation was not influenced by the heat of the water in the receivers. Each receiver was mounted on a small weighing scales accurate to one one-hundredth pound.

A mercury manometer was used to obtain the pressure of the steam in the central header, and since the temperature of the steam for any known pressure may be taken directly from steam tables, it was possible to determine the temperature of the medium within the drum with great accuracy. A pressure regulator in the steam supply line held the pressure constant within a small fraction of a pound, about 0.2 pound being the variation during a test; as the temperature change for the pressure variation was negligible, the temperatures were uniform and accurate within one degree.

No thermometers were required for determining the steam temperature, but one was used in each drum at the point of outlet of the condensate to detect the presence of air in the drums. The readings of these thermometers decreased upon the formation of air pockets in the lower part of the drums or in the connected piping. Air could be blown out of small petcocks located near the thermometers in the piping. No effects on the coefficients were noticeable when steam was allowed to escape for short periods from these petcocks, which could therefore be opened during a test to discharge any small accumulation of air.

The drums were shielded from radiation from each other by blackened compo-board partitions. These partitions did not in any way interfere with the flow of natural air currents. The temperature of the air was measured by thermometers suspended at the elevation of the drums at convenient positions nearby. The thermometers were not affected by radiation from the drums.

Thus, the actual measurements involved were simple and were not liable to serious error. These measurements consisted of the weiging of the steam condensed, the reading of the pressure of the steam, and the reading of the room air temperature.

### The Tests.

The tests, totaling forty in number, with four drums under steam in each test, were carried out at

night when the doors and windows of the large laboratory were closed. No air currents were noticeable near the apparatus. A period of ten hours was chosen for the duration of a test as that time was sufficient to permit accumulations of condensate great enough to render negligible the slight error in weighing.

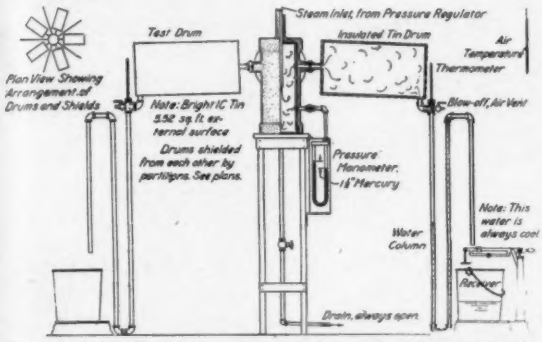

Steam Inlet from Pressure Regulator
Test Drum
Insulated Tin Drum
Air Temperature Thermometer
Plan View Showing Arrangement of Drums and Shields
Note: Bright IC Tin 5.52 sq. ft. external surface
Blow-off, Air Vent
Drums shielded from each other by partitions. See plans.
Pressure Manometer, 15" Mercury
Water Column
Note: This water is always cool
Receiver
Drain, always open

FIG. 1. SECTIONAL ELEVATION OF STEAM DRUM PLANT FOR TESTING SURFACES FOR HEAT EMISSIVITY

The drums were tested in different positions around the steam header in order to compensate for any irregularity in the flow of steam to the drums or in the currents of air about the drums. As no irregularities were noticeable in the values of the coefficients of emissivity for the various positions, the practice was abandoned after the first four drums were tested in the interchanged positions.

One drum, of bright tin not insulated, was in operation in all tests. Its performance served as an indication of any lack of uniformity in the conditions existing throughout the tests.

### Results of the Tests.

The significance of the tests will be best understood by a study of the information presented in the diagrammatic chart, Fig. 4. The heavy black bars afford a graphic comparison of the heat emitting value of the various surfaces. Reference must be made to the descriptive list of drums in order to connect the data with particular test specimens. The relative efficiencies of the various surfaces as heat insulators are given in the next to the last column of the chart. The coefficient for bright IC tin was used as the basis for this comparison.

The first result of importance is the convincing evidence which the tests present as an argument against the use of thin layers of asbestos paper covering on bright tin pipes. The heat lost was 39 per cent. greater with one thickness of the paper than without. Such a loss is of no small degree of importance as calculations will show that it results in a waste of 5 per cent. or more of the coal consumed in the average house furnace.

The fact that the heat loss from the warm-air pipes of a furnace system is of some consequence is not appreciated generally. A considerable part of the heat of the air flowing through the pipes of the average installation is dissipated from the pipe surface to the surrounding air and nearby objects.

The significance of these preliminary tests is to bring out the fact that the heat loss from warm-air furnace pipes is a serious item. In the case of asbestos paper-covered pipes, the loss amounts to about 23 per cent. of the heat of the air at the bonnet, above inlet air temperature. If the pipe is of bright tin and not covered, this loss is reduced to about 17 per cent. of the heat available. In either case the loss is great; and with the further consideration that a warm-air furnace under average conditions of installation is, at best, only about 60 per cent. efficient, it will be understood that the actual waste of coal ascribable to poor heat pipe insulation is enough to warrant attention.

The attempt was made in the steam drum tests to determine the effect upon the heat loss of having the drum partly enclosed so that free circulation of the air about the drum would be prevented. The experiment simulated the effect of running leader pipes

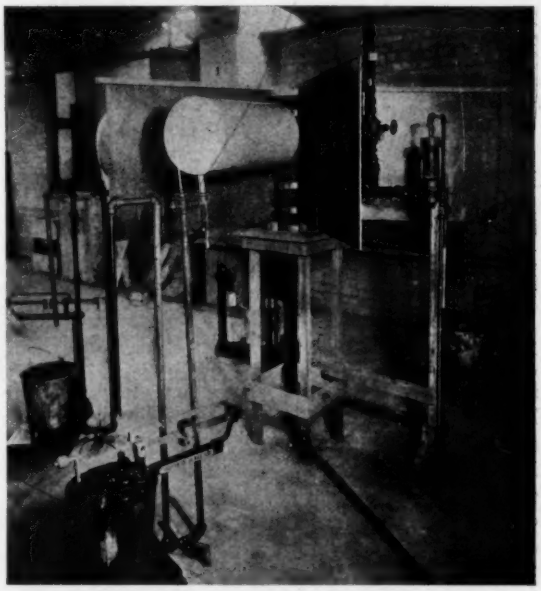


FIG. 2. PHOTOGRAPH SHOWING THE PRINCIPAL OPERATIVE FEATURES OF THE STEAM DRUM PLANT

between joists. The results of these tests as shown in No. 14 and No. 14*a* indicated a slight decrease in the value of $K$ for the enclosed drum.

The argument has been advanced that if bright

tin pipes were used without covering, they would soon become fouled with dirt and dust and so rendered less efficient heat carriers than asbestos paper covered pipes. The fallacy of this argument is revealed by tests No. 1*a* and No. 16*a*. In these tests fine ash dust was sifted on the test drums, one of bare bright tin and the other asbestos paper covered. The dust was more than one-sixteenth inch deep on top of the drums. The results as shown in tests No. 1*a* and No. 16*a* of the chart indicate that the bare tin suffered a loss of 11 per cent. in efficiency whereas the asbestos paper surface improved

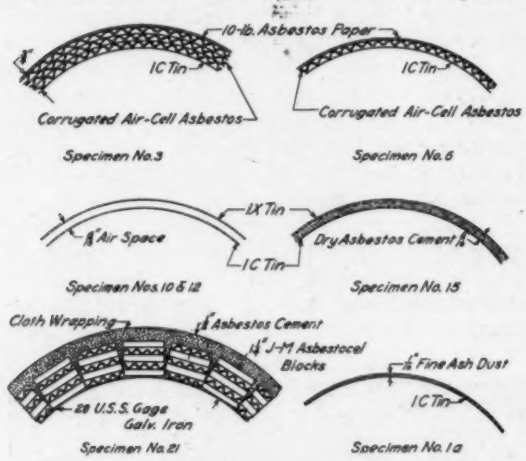



FIG. 3. SECTIONS SHOWING CONSTRUCTION OF SOME OF THE COMPLEX SURFACE COVERINGS

2.4 per cent. There still remained, however, a difference of 25 per cent. in favor of the bare tin pipe.

In order to demonstrate further the inefficacy of thin layers of asbestos paper as a heat insulator, tests were run in which the number of thicknesses of paper was increased until the heat loss became less than the loss through a bare bright tin specimen. Eight thicknesses of the twelve-pound paper were applied before the desired result was obtained. In these tests the moistened paper was wrapped tightly and shrunk on the drums so that only a small quantity of air was entrapped between the successive layers of paper. The total thickness of paper was two-tenths of an inch. The impractical features of such a method of insulating are of course evident. The use of thin layers of asbestos paper on bright tin pipes must be abandoned if the best results are to be obtained in furnace heating.

Other materials of better heat insulating value than the bare tin were tested. Numbers 3, 6, 10, 12, 15, 18 and 21 all show values which indicate that a large saving would be effected by their use. Some of them are expensive and not easy of application, but good selections may be made. The air-cell combinations Nos. 3 and 6 are excellent insulators, are easy to fit to basement leaders, are not expensive, and the latter, in particular, is not bulky.

The double wall tin pipes Nos. 10 and 12 are very efficient insulators and are easy to construct and to install. Other tests are in progress which are expected to establish still further the merits of this type.

The tests on galvanized iron specimens brought out the fact that the heat loss through this material is not greater than through bright tin of the same gage. This low heat radiating property is an argument in favor of the galvanized iron leader pipe Nos. 18 and 21 are good insulations for the exterior of furnace casings, the heat loss through the latter being almost negligible. No. 21 is very easily applied.

The tests on drum No. 11 were made to determine the effect of transparent applications on the tin surface. Bakelite lacquer was used. The result was a slight increase in the heat loss. It was thought that the use of the lacquer would be justified in practice by its rust preventing qualities, but specimens exposed to steam laden air for long periods show no advantage for the protective coating.

Tests Nos. 20 and 23 were made for the purpose of ascertaining the effect of color upon the heat radiating value of a surface. Applications of white calcimine were made on a drum which was tested; then a coat of dull black calcimine was added and the drum re-tested; a final coating of white calcimine was applied and the drum again tested. The alternate tests with white calcimine checked very closely proving that the additional thickness of the calcimine was not sufficient to have any bearing on the results. Beyond demonstrating the superior radiating value of a dark surface, the tests have little significance.

Specimens Nos. 4 and 5 demonstrated the uneconomical effect due to increased heat loss of any kind of oil paint applications on heat pipes. A comparison of Nos. 1 and 4 will show the enormous increase in heat loss caused by painting bright tin heat pipes, and a comparison of Nos. 2 and 5 will show the similar wasteful effect of painting over the asbestos paper covering. However, the use of paint on asbestos paper has in its favor the moisture-proofing effect of the paint.

Other information of value may be found in the data given in the table. To use these data for the determination of the approximate heat loss from a heat pipe, it is only necessary to multiply the value of $K$ for the surface by the surface area of the pipe exposed and further multiply by the difference in temperature between the air inside and outside the pipe, or,

B.t.u. loss per hour $= K$ x Area in sq. ft. x $(t_1 - t_a)$

| Drum Number | Description of Surface | Area Exposed to Steam sq.ft. | Coefficient of Emissivity - K Btu. per sq.ft. per hr. per 1°F. 0 .02 .04 .06 .08 .10 .12 .14 .16 .18 .20 .22 .24 | | Relative Efficiency Per Cent | Drum Number |
|---|---|---|---|---|---|---|
| 1 | IC tin, not insulated, bright | 5.53 | | 1.280 | 100.0 | 1 |
| 1a | Same as No. 1 with ash dust sifted on ¼" deep | 5.53 | | 1.440 | 89.0 | 1a |
| 2 | IC tin with 1 thickness of 10-pound asbestos paper | 5.52 | | 2.080 | 61.5 | 2 |
| 3 | IC tin with 3 thicknesses of air-cell asbestos and 1 thickness of 10-pound asbestos paper | 5.50 | | 0.565 | 226.0 | 3 |
| 4 | IC tin with 2 applications of gray paint, (of zinc, linseed oil, and lithpone composition) | 5.51 | | 2.225 | 57.5 | 4 |
| 5 | IC tin with 1 thickness of asbestos paper and 2 applications of paint, (No. 2 drum with same kind of paint as used on No. 4) | 5.52 | | 2.155 | 59.5 | 5 |
| 6 | IC tin with 1 thickness of air-cell asbestos and 1 thickness of 10 pound asbestos paper, (No. 3 drum used) | 5.50 | | 0.870 | 147.0 | 6 |
| 7 | IC tin nickel plated and polished | 5.54 | | 1.330 | 96.0 | 7 |
| 8 | Galvanized iron, No. 28 U.S.S. gage | 5.53 | | 1.330 | 96.0 | 8 |
| 9 | Black iron, No. 28 U.S.S. gage, very rusty | 5.52 | | 2.370 | 54.0 | 9 |
| 10 | Surface and drum No. 3 with IX tin casing surrounding, with ⅛" air-space and with 6 ½" vent holes cut in the casing | 5.50 | | 0.700 | 183.0 | 10 |
| 11 | IC tin (drum No. 1) coated with Bakelite lacquer | 5.53 | | 1.575 | 81.5 | 11 |
| 12 | Same as No. 10 but with vents stopped | 5.50 | | 0.593 | 216.0 | 12 |
| 13 | IC tin (drum No. 2) with 1 thickness of 10-pound asbestos paper and a surface of glaze finish printers' proofing paper | 5.52 | | 1.800 | 71.0 | 13 |
| 14 | IC tin drum No. 4 with paint removed and a housing of compo-board construction, to represent joists, built around same. Housing 8" deep by 14" wide by 28" long | 5.51 | | 1.430 | 89.5 | 14 |
| 14a | Same as No. 14 with housing removed | 5.51 | | 1.520 | 84.3 | 14a |
| 15 | Same as No. 10 but with the air-space packed with dry J/7 asbestos cement | 5.50 | | 0.899 | 142.0 | 15 |
| 16 | IC tin with 2 thicknesses of 12-pound asbestos paper | 5.52 | | 1.880 | 68.1 | 16 |
| 16a | Same as No. 16 with ash dust sifted on ⅛" deep | 5.52 | | 1.820 | 70.5 | 16a |
| 17 | IC tin (drum No. 2) with 3 thicknesses of 12-pound asbestos paper | 5.52 | | 1.790 | 71.5 | 17 |
| 18 | Galvanized iron (drum No. 8) with 3 thicknesses of air-cell asbestos and 1 of 12pound paper | 5.53 | | 0.577 | 222.0 | 18 |
| 19 | IC tin (drum No. 2) with 4 thicknesses of 12-pound asbestos paper | 5.52 | | 1.670 | 76.5 | 19 |
| 20 | IC tin with 1 thickness of asbestos paper covered with a firm coating of white calcimine, (for determining the effect of light and dark surfaces) | 5.51 | | 2.050 | 62.5 | 20 |
| 21 | Galvanized iron (drum No. 8) with 1¼" Asbestocel blocks covered with ½" of asbestos cement and a cheesecloth wrapper | 5.53 | | 0.326 | 392.0 | 21 |
| 22 | IC tin (drum No. 2) with 5 thicknesses of 12-pound asbestos paper | 5.52 | | 1.435 | 89.0 | 22 |
| 23 | Same as drum No. 20 with lampblack calcimine on the surface used in that test | 5.51 | | 2.120 | 60.5 | 23 |
| 24 | IC tin (drum No. 2) with 6 thicknesses of 12-pound asbestos paper | 5.52 | | 1.390 | 92.0 | 24 |
| 25 | IC tin (drum No. 2) with 7 thicknesses of 12-pound asbestos paper | 5.52 | | 1.320 | 97.0 | 25 |
| 26 | IC tin (drum No. 2) with 8 thicknesses of 12-pound asbestos paper | 5.52 | | 1.260 | 101.5 | 26 |

FIG. 4. DIAGRAMMATIC TABLE OF THE RESULTS OF ONE HUNDRED SIXTY TESTS ON STEAM DRUMS

On account of the difficulty of correctly measuring the temperature of the air near the inner surface of the pipe, the method of determining the loss from a pipe as here given, is only approximate.

CONCLUSIONS.

The following significant results as applied to warm-air furnace heating are deserving of special emphasis.

(1) The use of thin sheets of asbestos paper on bright tin heat pipes results in a waste of heat. The use should be abandoned.

(2) Uncovered bright tin pipes are more efficient carriers of heated air than asbestos paper-covered bright tin pipes. See item (4).

(3) This fact is true regardless of the degree of brightness of the tin surface.

(4) No small number of applications of asbestos paper will suffice as an insulator. Several thicknesses are necessary to make a covering equal in this respect to the bare tin.

(5) The accumulation of dust and dirt on the pipes does not greatly alter the amount of the loss.

(6) The heat loss from warm-air furnace pipes covered with one layer of asbestos paper is a serious item in the cost of heating, amounting to more than 5 per cent. of the coal consumption, depending upon the number and size of the pipes used.

(7) The fact that pipes are partly protected from convection currents of air by joists and studding does not greatly affect the loss.

(8) *Unless the insulation excels the uncovered bright tin in heat insulation properties it should not be used.*

(9) Such materials are available and the tests have shown their merits.

The results of the tests have been given some publicity heretofore, but not in the complete form presented in Bulletin 117, reproduced in part in this article.

It is to be hoped that those having under their direction the specifications and installation of heating systems will put to practical application the results of these tests.

## The Profession of Engineering

The following list of books and papers has been compiled by Engineering Council in response to requests, especially from parents and vocational advisers of high school boys, for information concerning the principal branches of engineering, the education and training requisite therefore, and the possibilities for making a livelihood therein.

Those works which are followed by a code number may be consulted by the general public in Engineering Societies Library, 29 West 39th street, New York.

*Engineering as a Career*—Edited by F. H. Newell and C. E. Drayer. D. VanNostrand Co. 1916. 620 N. 443 E. (A collection of papers originally published in the "Cleveland Plain Dealer" and the "Scientific American" on various phases of engineering work.)

*Opportunities in Engineering*—Charles M Horton. Harper & Bros. 1920. 620 H 78.

*Engineering as a Vocation*—Ernest McCullough. David Williams Co. 1911. 620 M 139 E. (Subject matter based upon a series of addresses given before technical schools and associations of engineer assistants; published for information of parents.)

*Engineering as a Career*—Percival and A. A. Marshall. P. Marshall & Co., London. 1916.

*Addresses to Engineering Students*—Edited and published by Waddell and Harrington, Consulting Engineers, Kansas City, Mo. 2d Edition, 1912. 620 W 118 A. (Purpose of book is to give engineering students a broad conception of the profession.)

*Engineering as a Profession*—Milo S. Ketchum. Bulletin of University of Colorado, 1916. No. 6. General Series No. 98.

*Engineering as a Profession*—Dean William G. Raymond, University of Iowa. University Extension Bulletin No. 3. New Series No. 73. April 11, 1914.

## New Engineering Service for Business

The Bureau of Chemistry has made arrangements to provide what they term "A New Engineering Service for Business." According to Dr. C. L. Alsberg, head of the Bureau of Chemistry, Department of Agriculture, this office will devote much time to the study and development of methods of recovering valuable products from factory wastes. The methods arrived at will be worked out in such form that they will be ready for presentation to manufacturers on a thoroughly practical basis. It is stated that the Government expects to save millions of dollars for the industries of the United States through this office.

# Current News

## Happenings and Comments in the Field of Architecture and the Allied Arts

### Restoring Stonehenge

Now that Stonehenge, the grandest and most mysterious monument in Britain, has become the property of the nation, the government is putting it to careful and painstaking repair in order to prevent the ultimate collapse of its mighty "hanging stones." It was five years ago that Sir Edward Antrobus, a Wiltshire baronet, sold the ancient monument to E. H. E. Chubb, of Salisbury, for $33,000, and it was two years ago when Mr. Chubb presented his purchase to the British government. The war was then still on and the office of works, to whose care it fell, had other things to think about, but now that the war is ended the office of works has speedily set about the task of preserving the great monoliths of Stonehenge.

Half a dozen men under the direction of Sir Frank Baines, of the office of works, are making the ancient circle of stones look as it did when it was completed by the sun worshipers of Salisbury plain some 8,000 years ago.

### Industrial Information for China

Of interest to those who do, or desire to do, business in China is the announcement that the Government Institute of Technology at Shanghai, China, beginning with February, 1921, will open a Bureau of Information for Alumni. The above school is under Chinese government support and turns out engineers with a technical education equivalent to that of an American engineering school. There are no architectural schools, so these men serve in a double technical capacity. They are often located far from the port cities, and when they desire information regarding equipment or materials find it difficult to obtain. To meet this need the school is about to open this bureau. Manufacturers who are interested are invited to send catalogs, specifications, details, approximate cost and samples, or instruct "Sweet's" to do this. No sales will be made nor attempted. Impartial information alone will be offered. A member of the faculty is now in America on leave and he will be glad to communicate further with any who desire information regarding the China field. Address H. A. Vanderbeck, 5 Cammann Place, Somerville, N. J., until December 1, 1920, and Box 951, U. S. P. O., Shanghai, China, after that date.

### Find Store of Papyri

"We have found the national wastepaper basket of ancient Egypt," was the expression used by a member of the French Academy of Historic Inscriptions to describe a recent discovery of the French Egyptologist, Lecau.

Beneath the ruins of a temple dedicated to Thoth in the holy city of Heliopolis, it was cabled to the New York *Times,* Professor Lecau found a subterranean necropolis containing tens of thousands of mummified bodies of the sacred Ibis, each neatly packed in an earthenware jar. The packing was nothing but crumpled papyri—ancient Egyptian manuscripts—which, say investigators, appear to consist of everything written, from love letters to washing bills.

There are literally hundreds of thousands to be deciphered, and it is estimated that the work of translation will take several years. When this is completed it is hoped that the whole life of the highly civilized Egyptians 4,000 years before Christ will be revealed.

### "Race Suicide" and the Housing Shortage

Facing an increase in rent nearly twice as much as she used to pay, a Philadelphia mother appealed to the legal aid bureau of the department of welfare, stating that she and other tenants are "raising Americans for America, but have no place to put them."

Her petition found instant favor. It was forwarded to the Philadelphia adjustment commission for an immediate investigation. Whatever was done in behalf of this woman and her neighbors it is to be hoped that in at least one case the rapacity of landlords was checked.

The objection to children has become a national scandal. They are not wanted in apartment houses. Couples who have children and cannot afford to buy a home are at the mercy of property owners. Their opportunities to move when rents are raised to exorbitant figures are limited. A man and his wife might contrive to shift for themselves in one small room, but that is out of the question when they have several children. They must make the best of a bad situation.

There is an increasing tendency in America to keep



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down the birthrate. The "race suicide" against which Theodore Roosevelt preached is revealed in the latest census figures. Children are not desired by some people because of the expense and trouble of rearing them. Others who want to "raise Americans for America" are deterred by the hostile attitude of apartment house landlords and owners of residential property.

The heartless landlord cares little for what a reduced birth rate may mean to the country, but the unpopularity of the stork is viewed with grave concern by everyone who is interested in the natural increase of population without depending on a steady influx of immigrants from the Old World, many of them of doubtful value as citizens.

## Royton Hall, a Home of the Byrons

Fine oak-panelled rooms, magnificent staircases, stout rafters, choice mullioned windows—are not these elements of a sixteenth-century mansion coveted? It is said that Americans are after some of them, but it is preferable that the hall should stand intact. It is said, however, to be "in the market," and Mr. Arthur R. Scott, president of the Manchester Archaeologists' Society, is appealing to the wealthy cotton spinners at Oldham and district for funds to enable the purchase of the Hall, the idea being to make it a lecture hall. Royton, which in 1212 was held by William Fitzwilliam, and in 1301 was sold in great part to John de Byron, remained in the Byron family for 400 years. Sir John Byron rebuilt the hall about 1585. Sir J. E. Radcliffe owned the hall until last month, when he sold it to the present proprietor, Dr. Godfrey, who is offering it for sale. Members of the local architectural associations should get permission to measure and draw it before it is demolished and carried piecemeal to America. Sixteenth century houses are becoming scarce, and this one was the home of the ancestors of the poet Byron.

## Fantastic Palace of Colored Stones Is Work of One Man

Ferdinand Cheval, a postman in Hauterives, France, is the builder of one of the strangest palaces in the world. As a young man, according to the Detroit *News*, he saw a series of pictures in a book of Oriental stories, and he was struck with the fantastic and picturesque qualities of the Oriental castles and palaces with their towers, minarettes, highly ornamental windows, doorways and arches. He began gathering stones of various colors and types in his afterworking hours and to read books on the art of masonry. He also talked to workmen, and watched them at their tasks.

He began to build in front of his little frame house a palace of weird design. He is now 80 years old and his dream creation is complete. It has all the towers and turrets and arches and scrolls that he desired. He gathered millions of pebbles and stones, and spent 67,500 working hours on it. It is eighty-five feet long and forty-five deep. The money used came in at first from his small savings, but as the palace grew tourists visited it in hundreds, and he obtained a goodly revenue from their hands. He hoped to be buried in it and erected a monument in the main hall, but local authorities forbade his burial there for reasons of public health.

## The Hearthstone Fire

When people used to come back to their old homes, after a long absence, it was often called a reunion at the family hearthstone. The fire on the hearth was a center of family life. Not merely cookery was performed there in the days before stoves, but it was a gathering place where intimate thoughts were revealed and plans for the future were made.

In these days many homes are built without any hearthstones. They seem like a body without a soul. But the crackling fire on the open hearth is still cherished by millions of people. It promotes reflection, it loosens tongues, it suggests reminiscence and conversation and adds good cheer to the family circle.

Those who put up houses without this center of warmth and life do not realize how much they detract from the value of their construction.

## The Use of Lumber in America

More lumber is used in the United States for general building and construction than for any other purpose, says the U. S. Forest Service latest report. In normal years probably 28 billion board feet is used in this way out of an average annual cut of forty billion feet.

For the five years before the war, 1910-14, the average annual building bill of the country shown by building permits was approximately $670,000,000. After dropping to $445,549,493 in 1918, it rose in 1919 to $1,326,736,702; but with building costs increased 100 per cent. or more, actual construction did not much, if any, exceed the pre-war average. Apparently construction work throughout the United States is behind requirements. The deficit is greatest in dwelling houses.

The building permits issued in twenty-one cities of various sizes widely distributed over the country show that, in values, housing construction formed 36 per cent. of all building in 1913; 21 per cent. in 1918, and 27 per cent. in 1919. The amount of

housing construction in 1913 was exceeded in 1918 in only two of the twenty-one cities, and in 1919 in only six, in spite of the "build-a-home" campaign. The falling off in house construction, continues the Forest Service report, generally appears to have been particularly marked since the latter part of 1919, when the greatest upward movement of lumber prices began.

The United States Housing Corporation states that normally 30 per cent. of the number of buildings constructed are dwellings; that in 1919 dwellings were only 15 per cent.; that 1,000,000 families in the United States desired houses even before the war; that the shortage has since increased very rapidly; that there were but 70,000 houses built in 1919, when to have met the requirements there should have been 500,000, and that in 1890 an average of 110½ families occupied 100 homes, but to-day 121 families occupy 100 homes.

## Hair as a Building Material

At one time the Japanese made use of human hair in building churches. It was the custom for church-going people to give some of their hair as a free-will offering when a temple was being built. Such a structure at Tokio had the beams and rafters held in place by one of these human hair cables. Placed end on end, this human hair rope measured 4,528 feet long and was 7 inches in diameter, no fewer than 350,000 persons contributing before a sufficient quantity was obtained.

## Old Wall Papers Sought

Wall paper, not the prosaic kind found in the ordinary band-box apartment, nor the flaring type prevalent in third-rate boarding houses, but the descriptive, illustrated variety so popular in the days of our great grandfathers, is being collected by the Pennsylvania Museum, Memorial Hall, Fairmount Park.

An appeal has been sent out to the public requesting it to preserve all available examples of early wall-papers, both imported and domestic.

The use of fancy wall-paper began shortly after the Revolution, at a time when pine paneling was much cheaper hence not so desirable. Combinations of paneling and frescoeing or papering were used, and the wealthier families at the time when fantastic designs were in vogue took pride in decorating their homes with imported paper from Alsace.

Few houses are now standing with original wall-paper still in place, and the common form in which it comes down to the present generation is in fragments used to decorated the huge handboxes of the pre-Civil War days.

An amusing example has recently come to the museum, donated by Mrs. Parker Marcan, of Wiscassett, Maine, which shows an early wood-engine pulling three coaches. In the background is a landscape replete with battlements and towers of the medieval period, the whole design forming somewhat of an anachronism. It is known as the "Baltimore and Ohio paper," and is believed to have been produced in the thirties.

## Skilled Labor Lacking to Build Houses

Attempts to solve Great Britain's housing problem have already brought forward upwards of 10,000 schemes involving an annual capital expenditure of $600,000,000, according to a report by a representative of the Foreign Trade Bureau of the Guaranty Trust Company of New York. After giving details as to various plans and the number of houses to be built in each of more than thirty cities visited the report says:

"What is keeping back housing at the present time is the fact that there are not enough skilled men to do even a quarter of the work wanted. The trades unions will not allow the number to be increased from the outside. The government is using a sort of indirect compulsion by prohibiting 'luxury and unessential build,' so that if a man will not build cottages he is not allowed to build anything else. There are various suggestions for speeding up the work, including a guarantee to the trades unions of employment for a term of years to men employed on housing work, to ensure them against loss of time in bad weather by a minimum wake 'wet or dry.' In return the trades unions will be asked to consent to dilution and the employment of unskilled and semi-skilled labor, to give up their apprenticeship rules and abandon all opposition to employment of ex-service men, trained or untrained. There are 'luxury building' tribunals to hear appeals against decisions prohibiting buildings regarded as non-essential.

"There are housing bond campaigns all over the country. In London subscriptions to the 6 per cent. bonds are coming in at the rate of about 100,000 a day. While the local governments are issuing 6 per cent. bonds, the British Government charges 7. Borrowing in the ordinary way for housing schemes not financed by bonds is usually 7 per cent."

## Militarism Disappears

One of the most striking physical signs of the demilitarization of Germany is in the degradation of the famous Brandenburger Thor, Germany's arch of

triumph, at the head of Unter Den Linden. Describing this in the Brooklyn *Eagle,* Guy Hickok reminds us that pre-war visitors to Berlin remember this arch as the very shrine of German militarism and kaiserliche authority.

No one but his imperial majesty was allowed to drive through the center arch. A platoon of the smartest soldiers in the German army was quartered there, ever ready to snap into the most epileptic rigidity at the approach of any high ranking officer.

Drums rolled at the arch many times a day—whenever such an officer loomed in sight—and burst into a perfect fever of thumping and stuttering when the all highest drove by. Ordinary folk had to leave the sidewalk to pass the guard at the gate.

Now every shabby cab driver, pushcart man, boy bicyclist or news vender makes it a point to go through the center arch and none other.

There is no platoon of soldiers of any sort on guard.

A thousand generals—if there were that many—might amble through without creating a stir.

There are no drums to thump.

One poor youth of the Security Police, not over well informed, sands on a block of stone, with not an atom of pomp in him.

No one in Berlin is so humble as to do him honor. No one thinks of leaving the sidewalk for him. In fact he has to have a fence in front of himself to keep from being pushed aside by civilians.

If he tried to exercise the authority of a New York policeman he would be mobbed. He assumes no control over street traffic or anything else. He merely stands.

Occasionally, but very seldom, a civilian stops to ask him the way to somewhere, and he digs out his little street directory and gives his answer meekly, embarrassed at having attracted attention.

The once proud arch itself is plastered with tattered white placards as big and as plentiful as our American wartime Liberty Loan posters. But the words and the purpose of the placards are quite different. They are there, not to increase military strength, but to reduce it. They are part of the German government's attempt to obey the disarmament conditions of the Versailles treaty and the big letters on them read:

"Deliver Up Your Weapons."

The smaller letters explain that the government must turn over to the entente the rifles that the soldiers took home with them when the army fell to pieces after the armistice and offer a premium for early surrender.

The Brandenburger Thor, used as an instrument for the weakening of German militarism, is as complete a reversal of purposes as if our own Statue of Liberty were fitted inside with prison cells for editors who insist on a free press.

## Personals

Ralph M. Weinrichten, landscape architect, has moved from the Cutler Bldg., Rochester, to 10 East 43d st., New York.

Herman D. Roller, architect, has opened an office at 64 East Van Buren street, Chicago, Ill.

S. Ben Algernon has moved his offices from 320 Fifth avenue, New York, to 122 East Seventh street, New York.

W. S. Purdy has moved from 320 Fifth avenue, New York, to 122 East Seventh street, New York.

Thomas Colesworthy has opened an office in the Courthouse, Westchester, Pa.

## News Notes from Various Sources

Ohio State University has raised a fund of one million dollars for a stadium to seat 83,000. The Yale bowl seats 63,000.

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Ogden, Utah, has given permission to put up rough shacks for homes at the municipal auto camping grounds. There are not nearly enough dwelling houses and the weather is getting too cold for tents.

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Akron, Ohio, will have a permanent art museum in the Public Library Building on East Market street. A. V. Ritter, president of the Akron Fine Arts Club, is sponsoring the movement. Co-operating with him are the Fine Arts, Art and History and Architectural clubs, and others.

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The Health Commissioner of New York has asked health officers of all cities of 200,000 population or more to attend a conference on housing problems. This conference will probably be held in Detroit, Nov. 30 and Dec. 1.

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In 1919 one million weddings were celebrated in the United States, but only 70,000 new homes were erected.

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Savannah, Ga., is taking steps to improve its physical aspects by better planning, and by cleaning up. Rose bushes are to be planted in numbers along roadsides and in the parks.

# Weekly Review of the Construction Field

## With Reports of Special Correspondents in Prominent Regional Centers

PROGRESS is being made in the improvement of railroad transportation.

Announcement on the part of the Treasury that it had extended loans to railroads in an amount close to $290,000,000 for equipment purposes, together with a list of the railroads thus aided, shows that provision is being made under the terms of the Transportation act for the better outfitting of the carriers. Statistics compiled by the Eastern railroads also show that during a recent month an increase of about two miles a day in car mileage was effected, an increase which may be regarded as equivalent to about 100,000 freight cars. The new purchases of equipment and the increase in efficiency have resulted in a very considerable reduction of freight congestion which has had a correspondingly good effect on business in many parts of the country. Deliveries are now more regular and more satisfactory than for a good while past.

The question of employment is also vital as affecting the stabilization of labor and the prices that must be paid for it.

The Federal Government figures for July showed the first definite decline in the volume of employment in the principal manufacturing industries for the country as a whole. In the State of New York official returns for manufacturing industries have shown a slow decline in the volume of employment beginning with April, the total loss for the six months from April to October being about 7 per cent. In the earlier part of the year, the needs of the farmer and other seasonal industries absorbed the labor thus released. Agriculture is now releasing labor, and unemployment is becoming increasingly evident. Increasing unemployment is not peculiar to this country but is world-wide.

THE statistics as to building permits during the month of September have now become available and we learn from the *American Contractor* that there is a definite slump in construction in 203 cities in the United States.

These reports give a total valuation of $101,834,729 for 38,383 permits issued, or an average valuation of $501,640 for September. This is considerably below the computed average monthly valuation per city for the first eight months of 1920, which is $696,920.

September showed gains in 71 cities over August and losses in 96, Los Angeles and Detroit making the largest gains. Chicago permits which dropped in August from July, make another drop of more than $1,500,000 in September, and the Borough of Manhattan also shows a decided reduction. Comparison of September activity for this year and for 1919 reveals a 40 per cent. recession for 1920. August showed a 32 per cent. recession over August, 1919. When it is considered that the estimated cost of practically any class of building is from two to three times what it was in 1913 and 1914, taking into account the lower purchasing power of the dollar, the September slump of this year is all the more marked. If volume of projected work were the basis of comparison rather than monetary value, the 1920 operations would drop below the average for each month since April when building permits reached the exceptional figure of $113,000,000.

The average value of building permits per city for months of August and September for years 1914 to 1920 follows:

| Year | August | September |
|---|---|---|
| 1920 | $626,750 | $501,640 |
| 1919 | 1,000,000 | 860,000 |
| 1918 | 287,000 | 225,000 |
| 1917 | 416,000 | 435,000 |
| 1916 | 624,000 | 627,000 |
| 1915 | 615,000 | 594,000 |
| 1914 | 733,000 | 593,000 |

(*Special Correspondence to the American Architect*)

BOSTON.—There is no radical improvement to report in the general business situation in New England this week. Rather does the tendency continue in the direction of further slowing up industrially and continued lack of confidence in the commercial world.

The downward readjustment of prices at wholesale is recognized as the logical development and one that must take place before business can go forward in anything like normal volume again. Many believe this condition can not be realized until labor prices fall. They are decreasing now. Employment agencies report that unemployment is increasing and it is inevitable that re-employment will be at lower wages. Local architects' offices report that more and more clients are calling for sketches of projects to be carried through either this winter or the early spring.

Large local buildings that have been held up for steel and other materials are now going up at fair speed.

Statistics of building and engineering operations

in New England show that contracts awarded from Jan. 1 to Oct. 27, 1920, amounted to $272,954,462, as compared to $187,388,000 for the corresponding period in 1919; $136,200,000 in 1918; $183,752,000 in 1917; $172,662,000 in 1916; $145,263,000 in 1915, and $139,295,000 in 1914.

*(Special Correspondence to the American Architect)*

SEATTLE.—There is a widespread conviction that December and onward will bring a change in the outlook that has prevailed for the past six months. Confidence is returning, and preparations are being made for a stronger movement of building essentials in city and country beginning with placements that are not to be delivered until after the 1920 stock taking.

The lumber mills which have been shut out of all eastern consuming territory by reason of the high emergency freight rates are at work on a plan with the coastwise steamship companies for a $15 rate for fir lumber to New York, Boston, Baltimore and Philadelphia. Shingle manufacturers already have secured sufficient concessions from these carriers to insure the movement of their entire output for the coming season by water at a substantial saving over the all-rail rate, and the problem of transportation is in a fair way of solution. Transportation is regarded here today as a much more serious phase of the coming construction year than finance. In accordance with the probability of equitable rates, the decline in the lumber market has been checked.

High representatives of the Pittsburgh steel mills have been in the Pacific Coast field on a survey of the prospects for 1920, and found the jobbing trade in a highly agitated state of mind. They were asked pointedly whether the mills hoped to clean up this year on back orders for small pipe, and were again reminded that orders placed with the mills in August, 1919, for galvanized pipe of three-quarters, a half and an inch had not yet been loaded. Replies were guarded, for it seems certain that if there was reliable information to the effect that the mills would be at normal on past business by that time there would be wholesale cancellations. Proportions are shown in the fact that large jobbing houses, capable of moving heavy tonnage, have received but one car of small pipe since August last.

The nail situation is improving. In face of the very light demand the supply is nearly normal. Any sudden call, however, would dislocate the present balance.

Water shipments from Pittsburgh on pipe, wire and sheet metal are now being accomplished in forty days from the date of loading aboard ship. The transportation difficulty developed through the car shortage and the high rail rates has been satisfactorily overcome.

The shortage of cement, although plants capable of maintaining a normal supply in brisk construction seasons are located within 125 miles of Seattle, is acute. Prices have not fluctuated. The scarcity of plaster is very similar to that of cement.

There is plenty of roofing, brick, plaster wall and beaver board to meet the quiet year-ending demand.

Lumber prices show further recessions for the week end. Dimension at the mills is $17.50 to $21.50 against $18.50 to $21.50 a week ago. Flooring, 1 x 4 No. 2 and better vertical grain is $1 lower at $58, with the same size in slash grain $7 off at $34. No. 2 and better finish in 1 x 8-10″ is down at $59, and 5-8 x 4, No. 2 and better ceiling is moving at $33 to $40, against $37.50 to $48 a week ago. Boards and shiplap are stronger at $19 to $27.50. Shingles are steady but 60 per cent. of the mills are closed for lack of business.

General expectation of a close down of the fir and shingle industry, due to the loss on all lumber now selling has diminished through the favorable progress in the request for workable water rates into the eastern building territory which will enable the West Coast mills to compete with southen pine for the eastern and middle western business.

The overcrowded condition of office buildings in this city, the prospects for high rentals and the long waiting lists have brought investors and architects more closely together, and there is now a fair prospect for a number of big jobs in 1921.